

Naval Air Warfare Center Aircraft Division Patuxent River

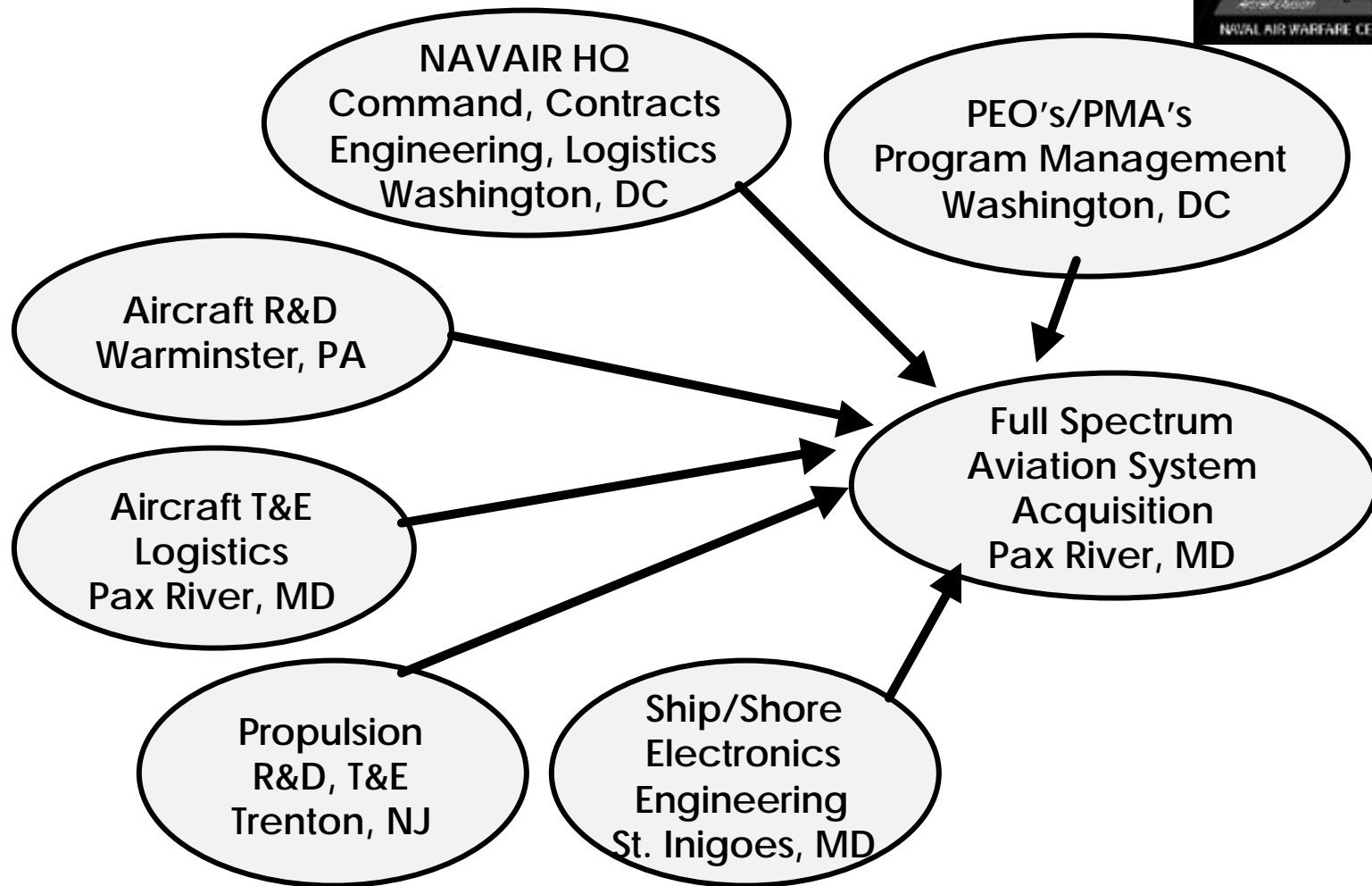


Overview

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Authors Zalesak, Philip		Project Number
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		Work Unit Number
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Consolidation at PAX



Mission



➤ **To be the Navy's Principal Research, Development, Test, Evaluation, Engineering, and Fleet Support Activity for:**

↳ Naval Aircraft

↳ Engines

↳ Avionics

↳ Aircraft Support Systems

↳ Ship/Shore Air Operations

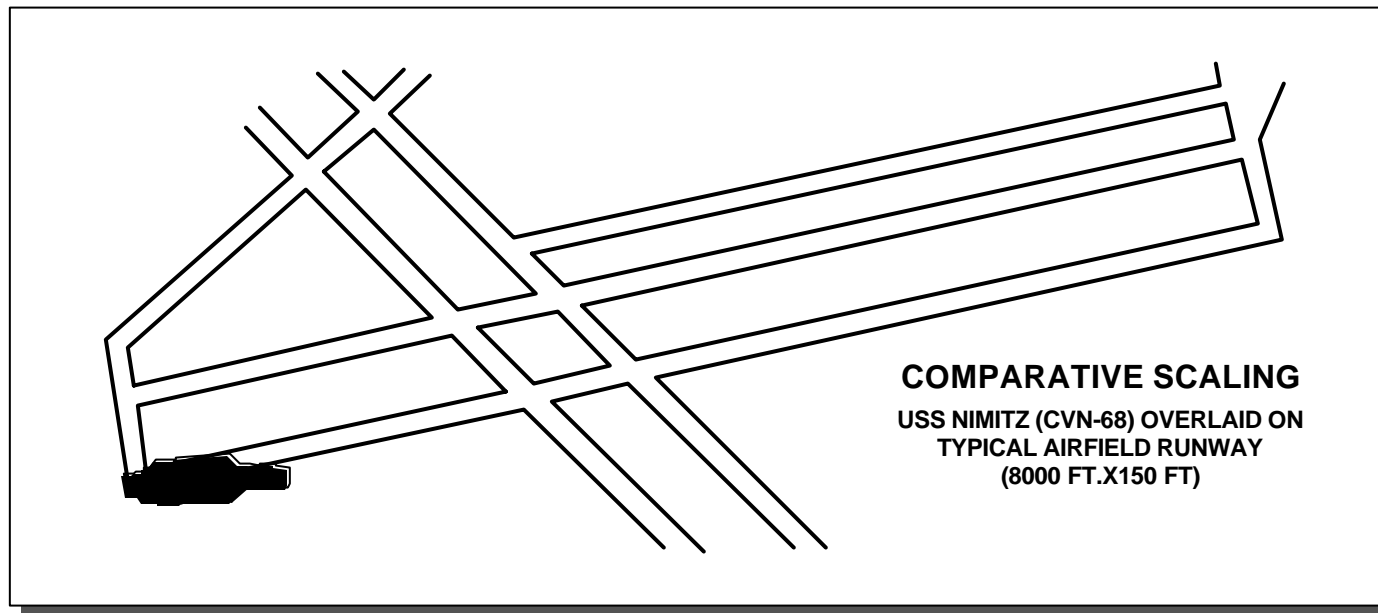
The Business We Are In



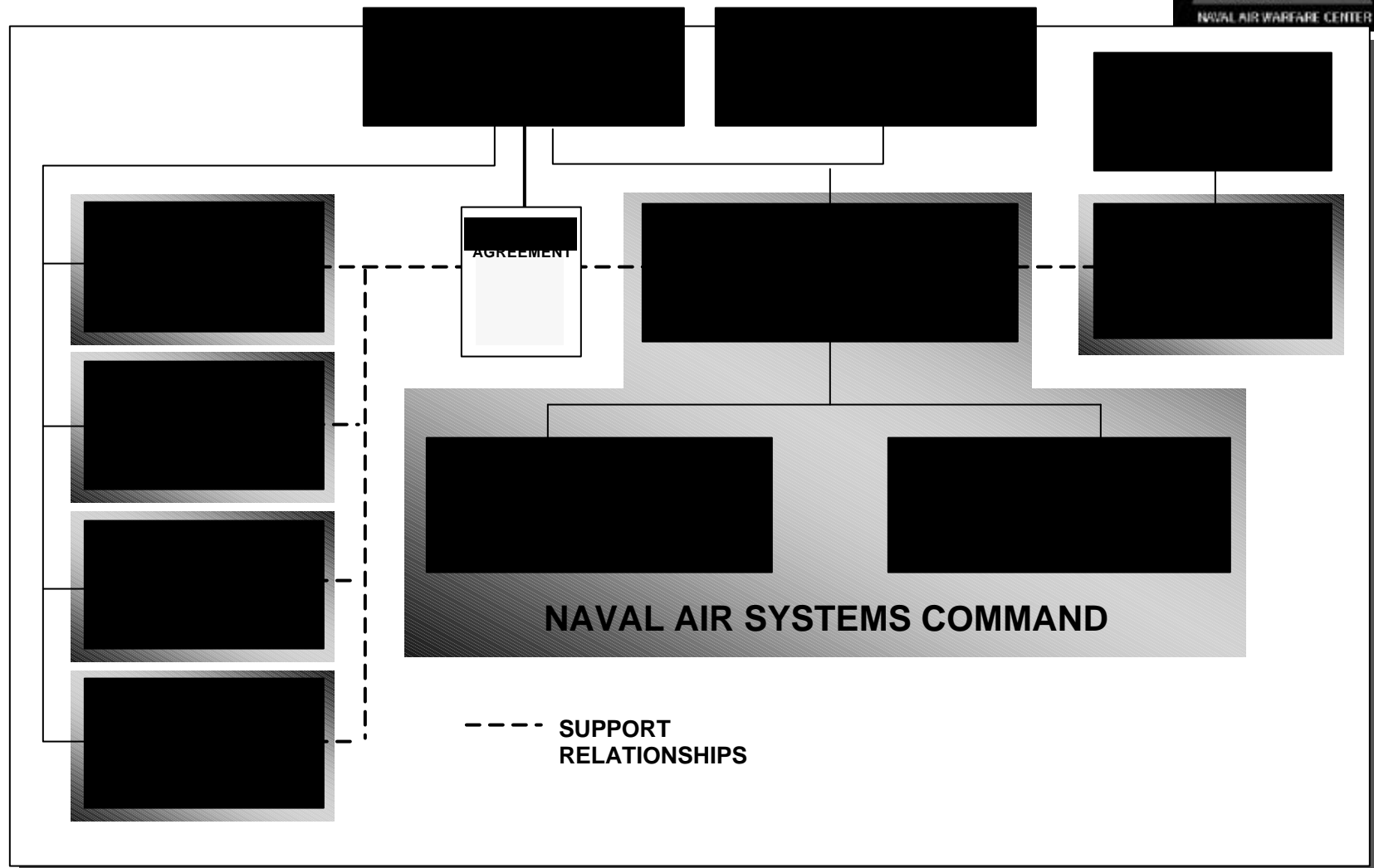
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➤ **Develop, acquire and support aircraft and related systems which can be operated and sustained at sea**

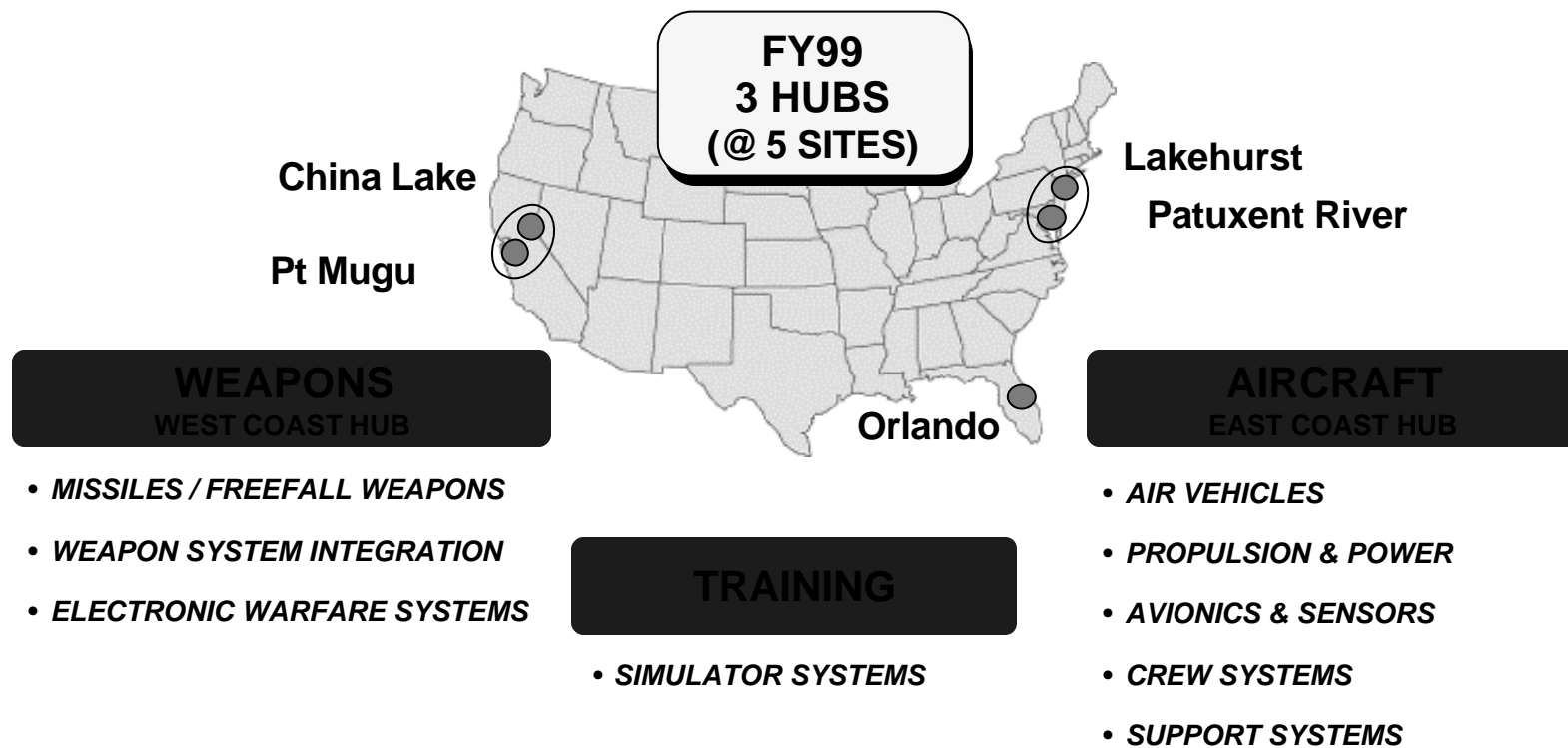
➤ **Work with industry on behalf of the user to deliver our products and services**



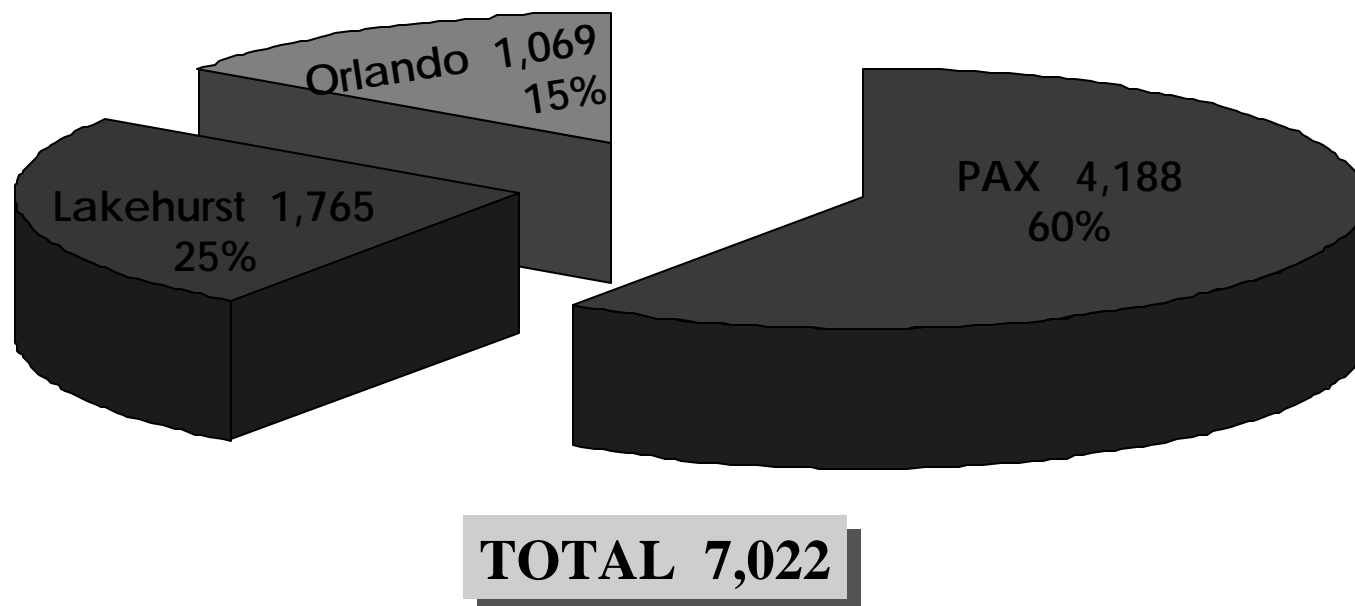
Naval Aviation Systems Team Reporting Relationships



Product Centers Work Areas

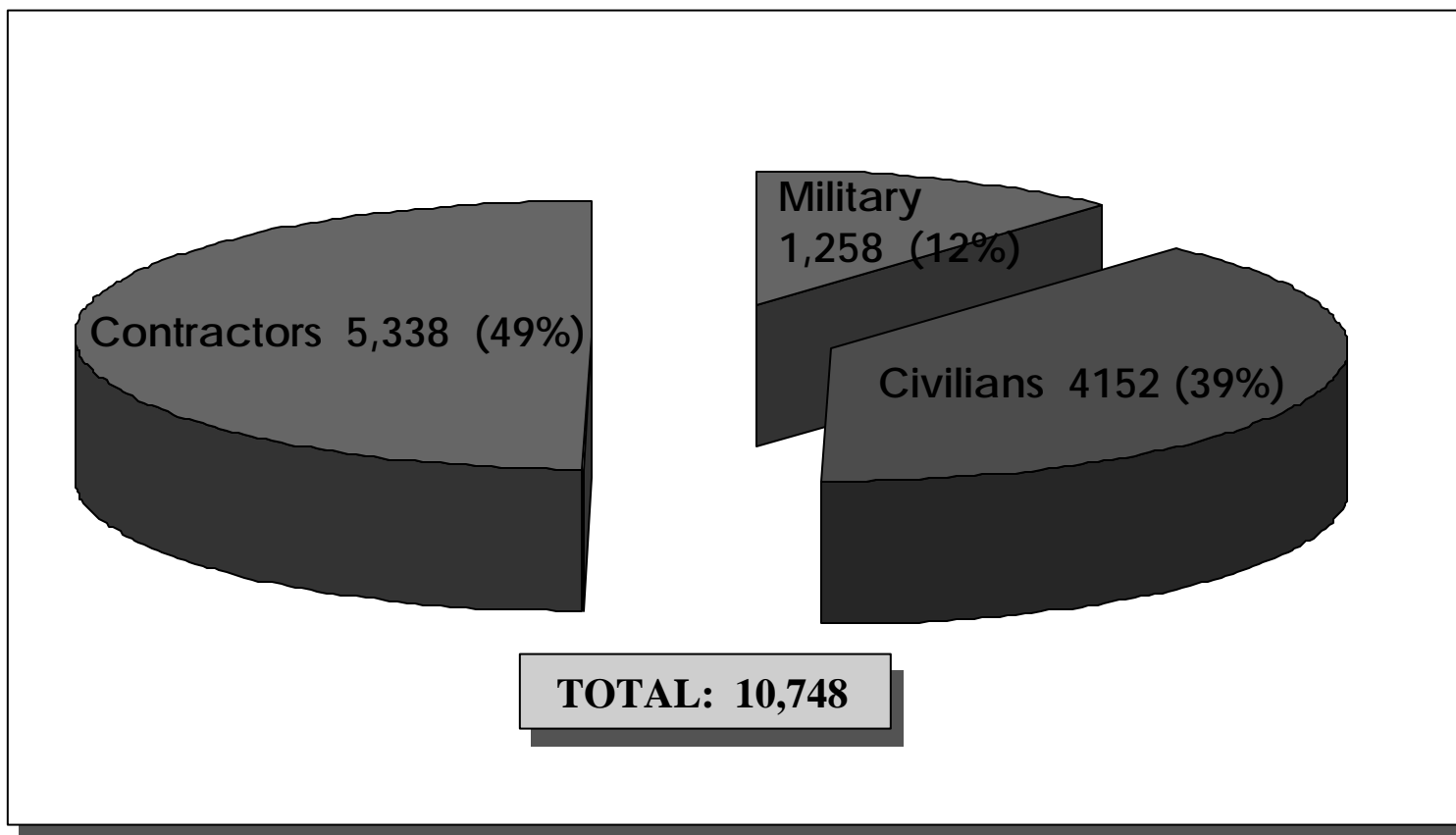


NAWCAD (PAX/LKE/ORL) Civilians by Site



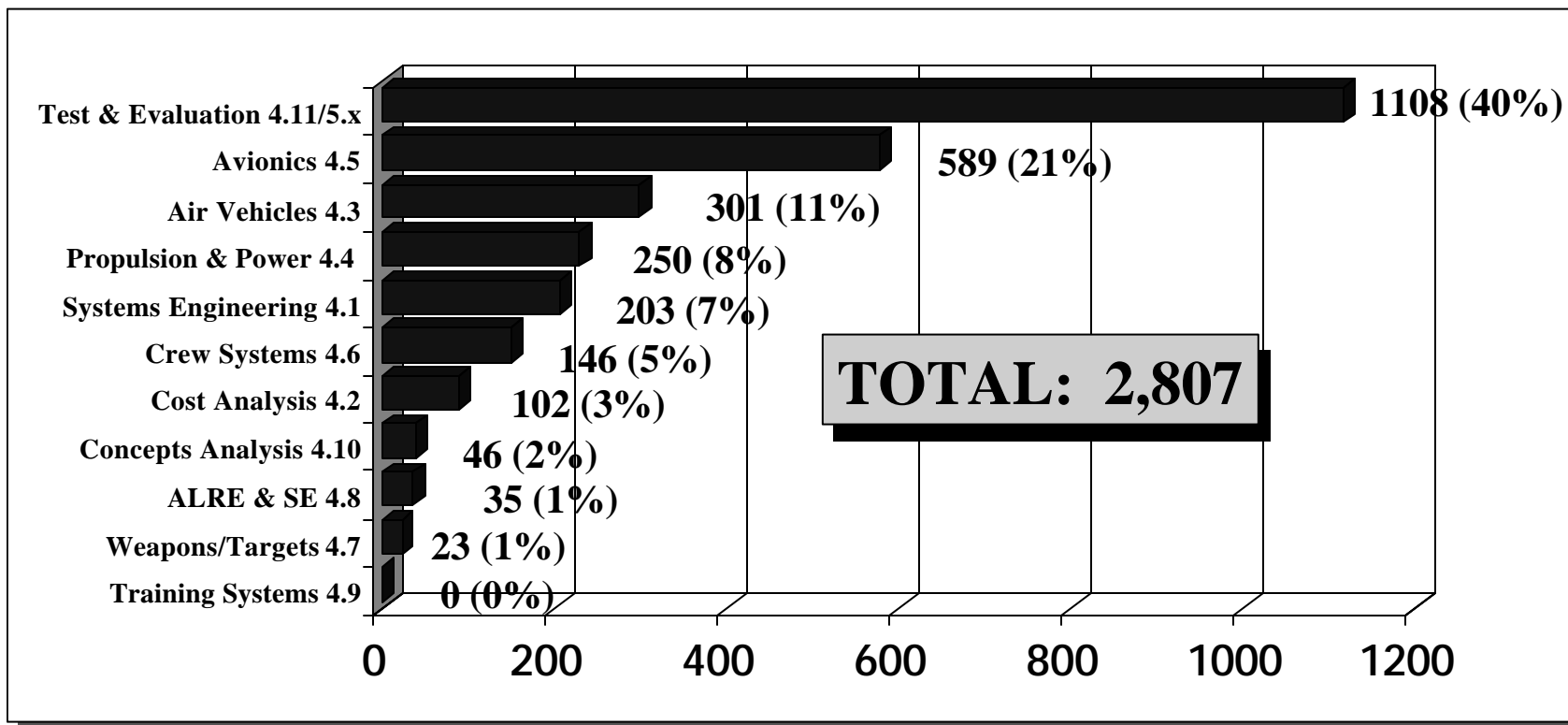
As of March 31, 1999

PAX Aircraft Division Workforce



As of 30 Sept 1999

NAWCAD (PAX) RDT&E Workforce



As of 30 Sept 99

Research and Engineering Labs



➤ Patuxent River Facilities



North Engineering Center





**Intermediate
Maintenance
Lab**



**S-3 System Readiness
Facility**



**Maritime
Surveillance
Aircraft Software
Production
Facility
(MSA-SPF)**



**P-3C Hardware
Integration Center**

South Engineering Center



**Adhesive Bonding
& Technology Lab**



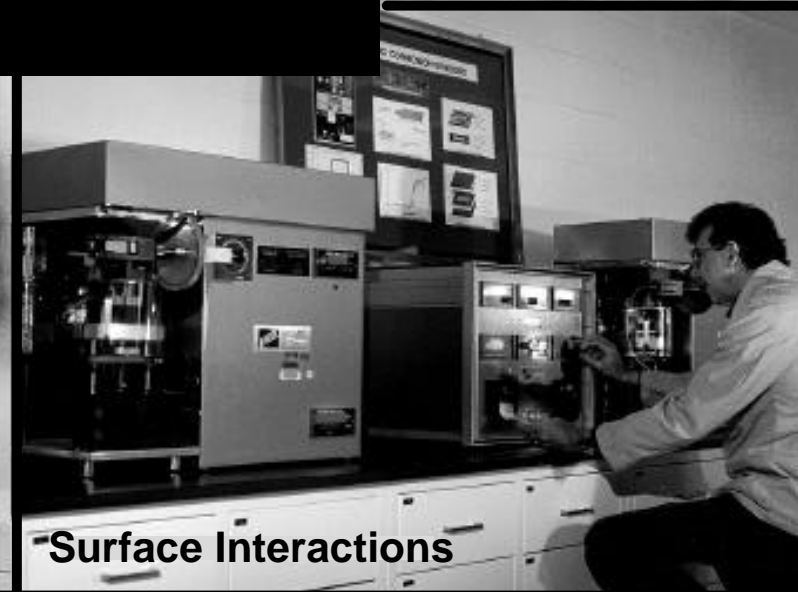
Landing Gear Composite



**Organic
Coatings**



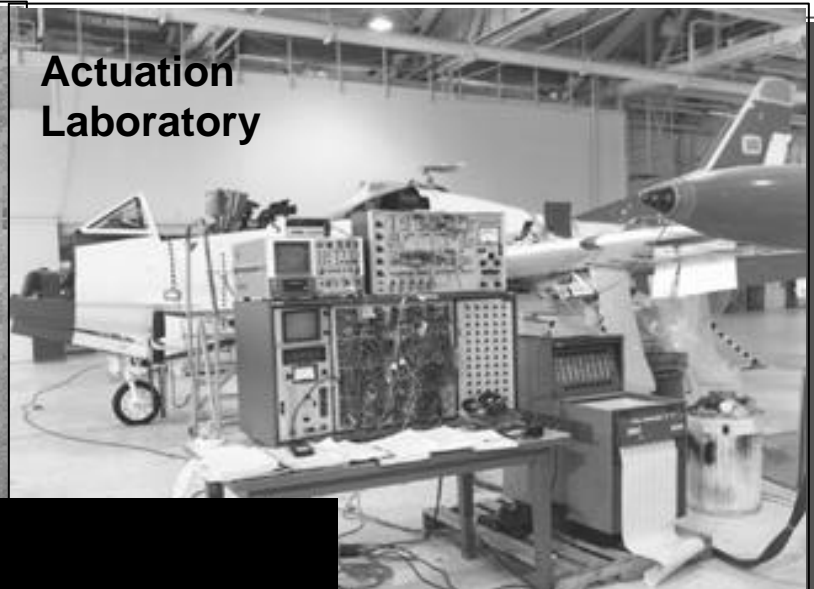
Surface Interactions



Structures Test Facility



Actuation Laboratory



Wind Tunnel



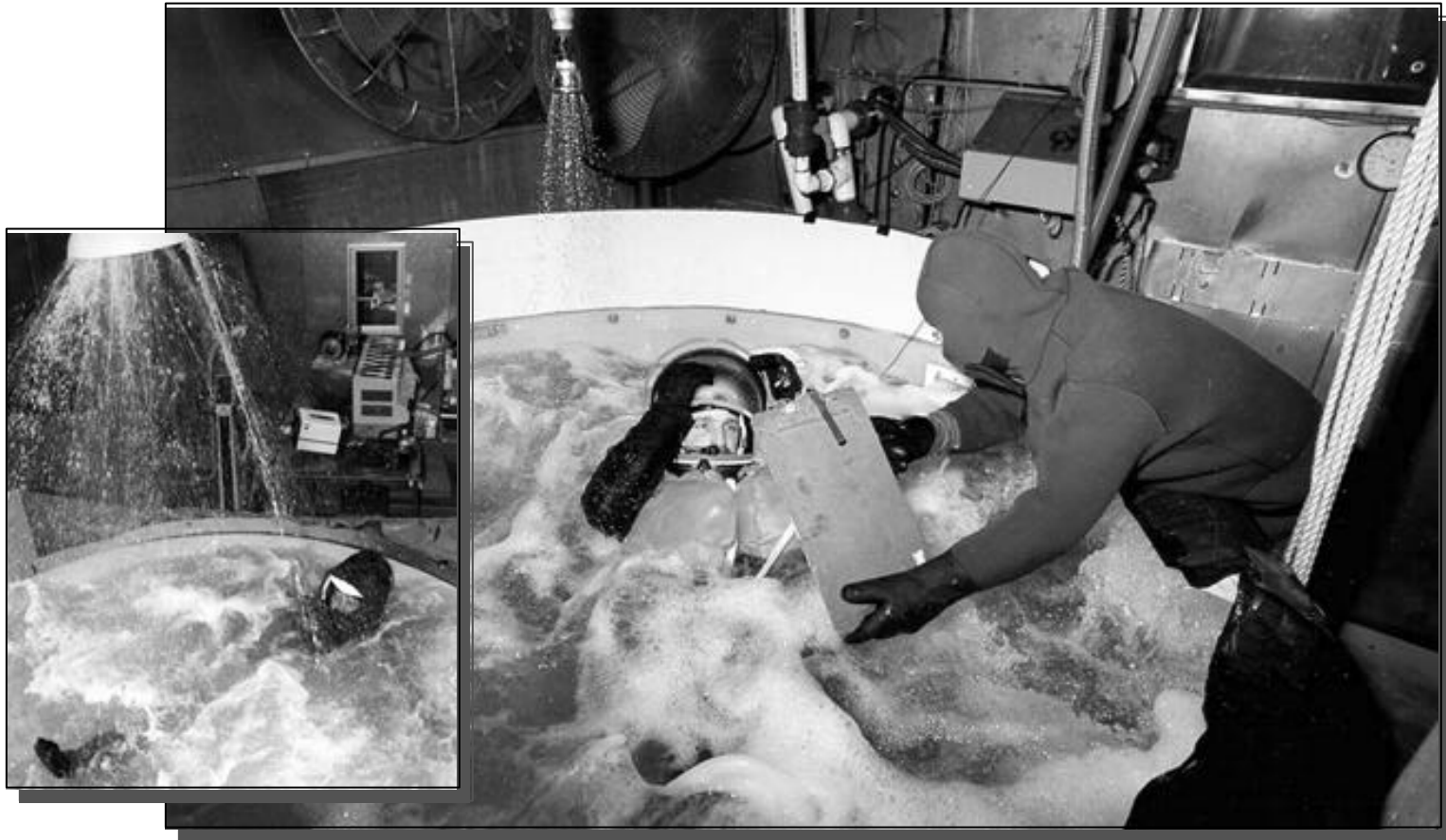
Airframe Bearing Laboratory



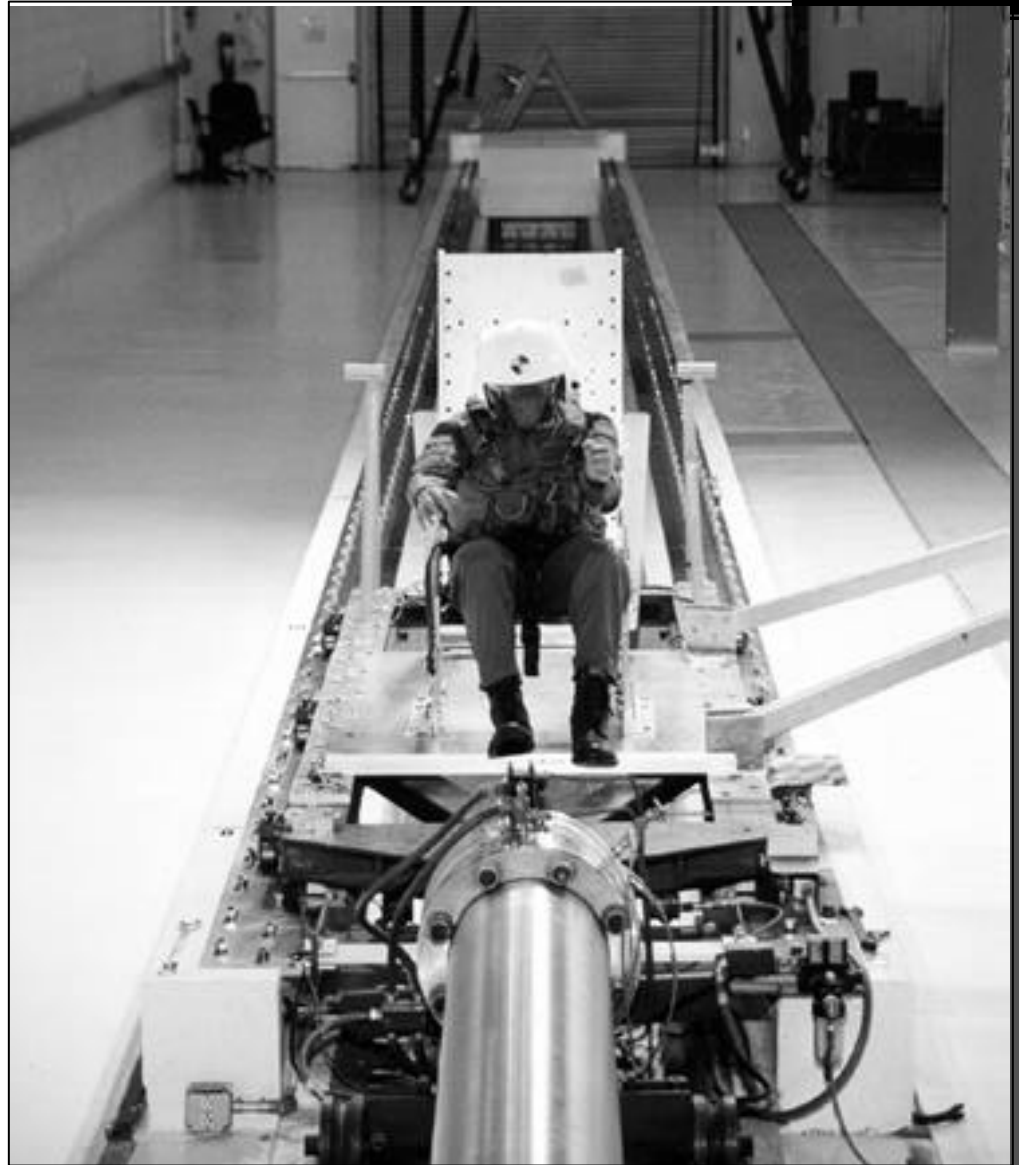
Crew Station Technology Lab



Thermophysiology Lab



Horizontal Accelerator



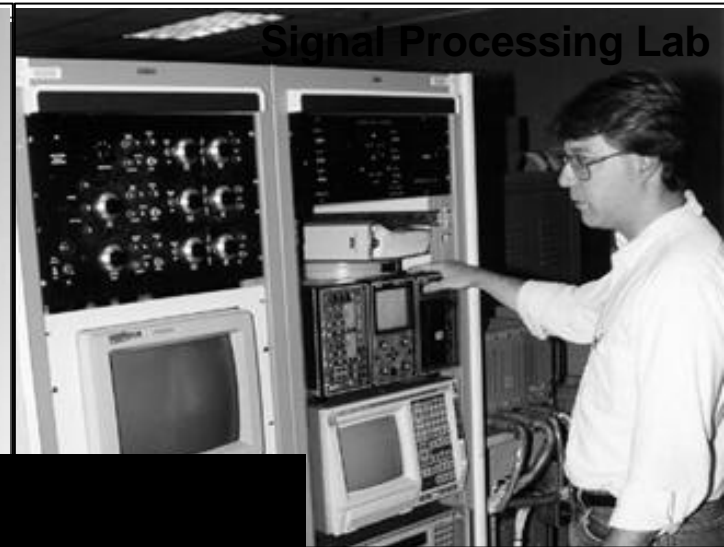
Ejection Tower



Microwave Techniques Facility



Signal Processing Lab



**Info Fusion
Development Facility**

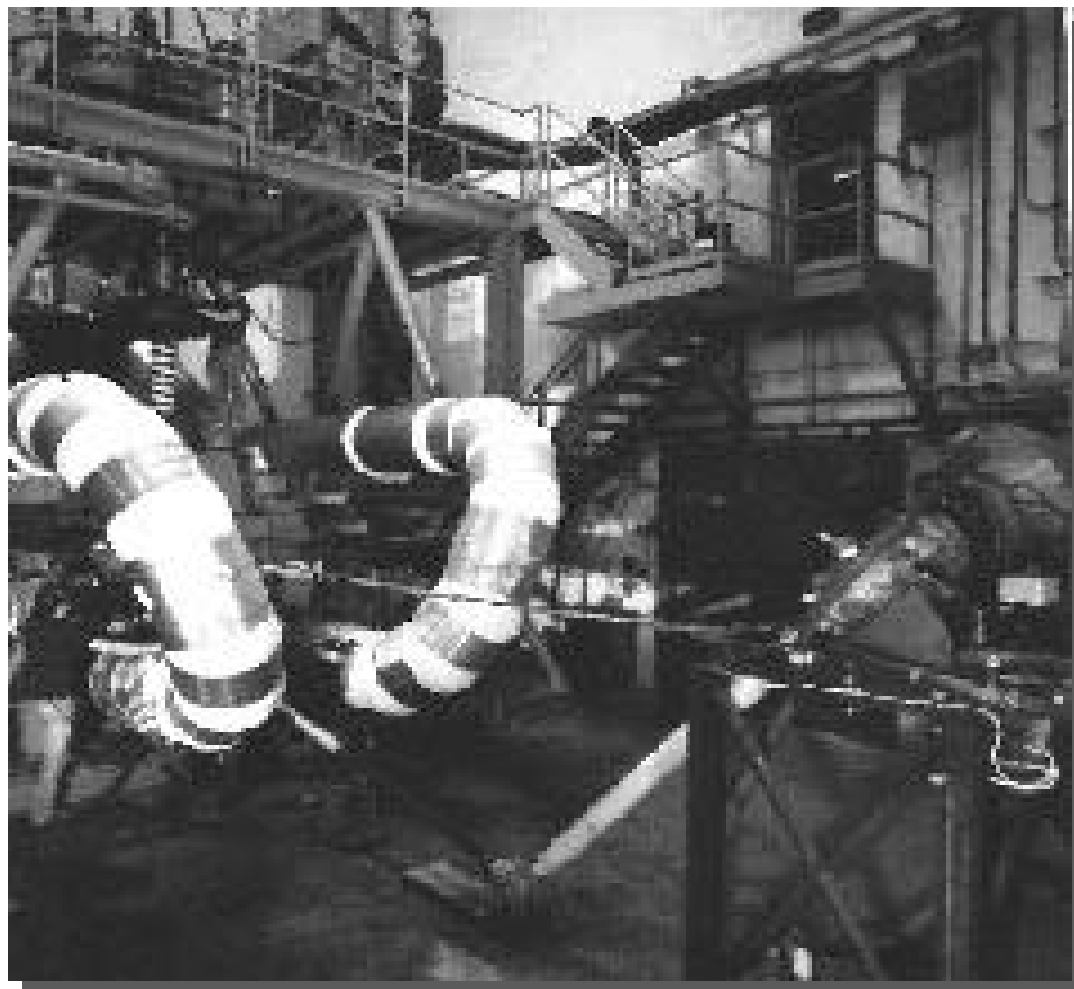


Tactical Radar Lab

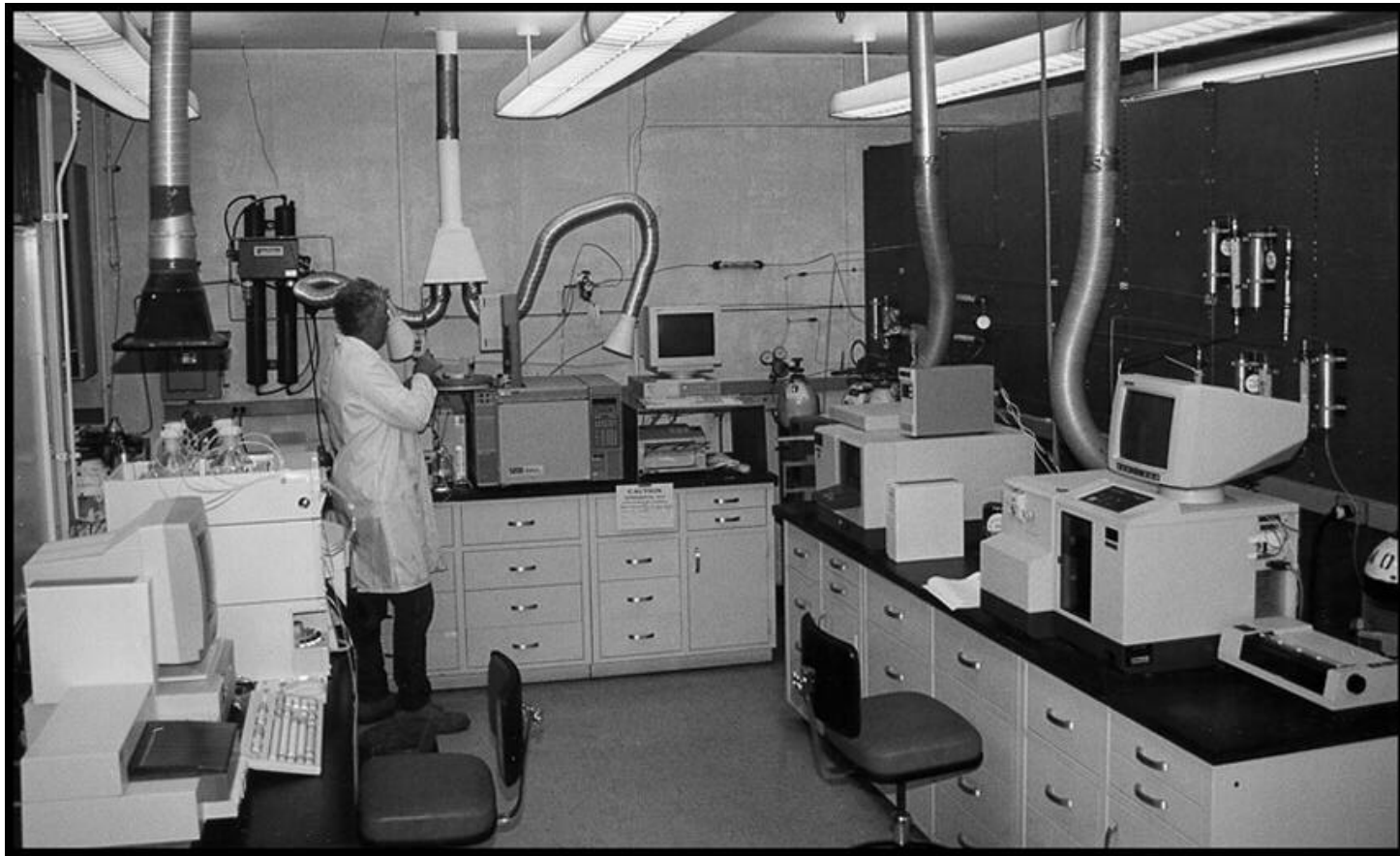
Propulsion & Power Labs



Helicopter Drive System Test Facility



Fuels and Lubricants



Rotor Spin Facility



Research and Engineering Labs



- **Pax
Facilities**
- **St. Inigoes
Facilities**



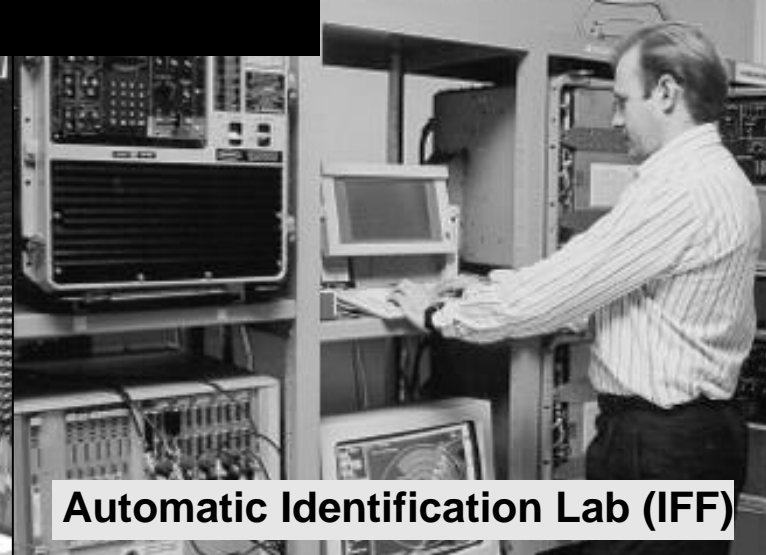
**Flight Area Control & Surveillance
Facility Test Bed**



Direct Altitude Identity Readout Lab



LAMPS Indoor Antenna Test Range



Automatic Identification Lab (IFF)

AEGIS



Combat & Communications Lab



Special Operations Group



**Advanced
Information
Technology**

Test Resources



Test and Evaluation Resources

Test & Evaluation Group



- **Atlantic Wing**
 - ↳ **Strike Squadron**
 - ↳ **Rotary Wing Squadron**
 - ↳ **Force Squadron**
 - ↳ **Test Pilot School**
- **Atlantic Range and Test Facilities**
- **Test Article Preparation**



F-14



T-45



F/A-18



EA-6B



V-22



H-60



AH-1W



H-53



P-3



S-3



E-6



E-2

R&D, DT and OT Collocation



Test Pilot School Aircraft



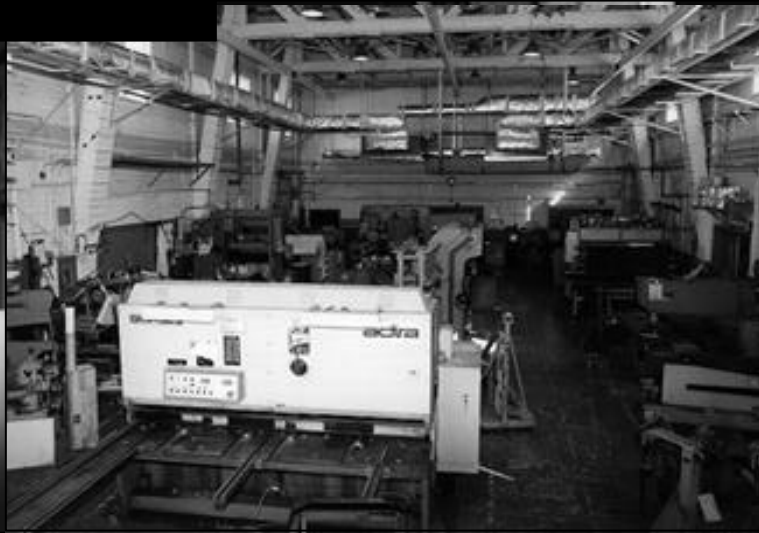
Test Article Preparation

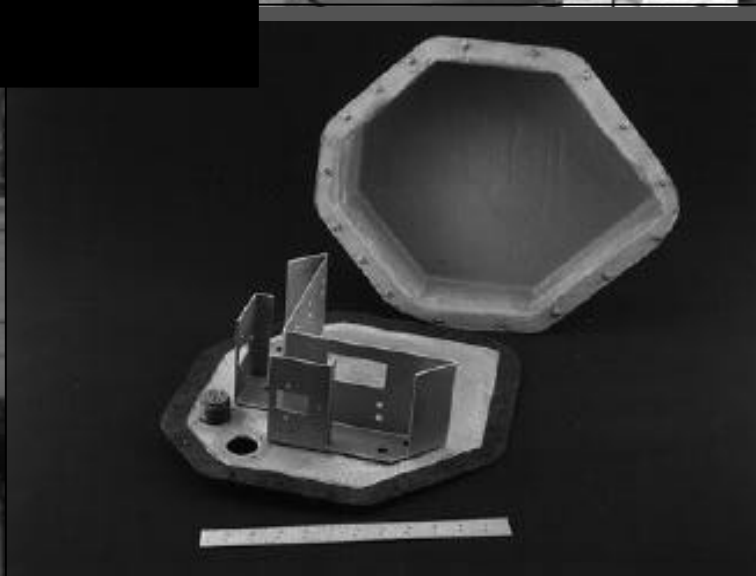


Instrumentation









**OH-1 IR Suppression
Installation**



P-3 OTH Antenna Installation



AH-1 Fuel Tank



**SH-60
MAD
Mounting
Assembly**



Rapid Prototyping



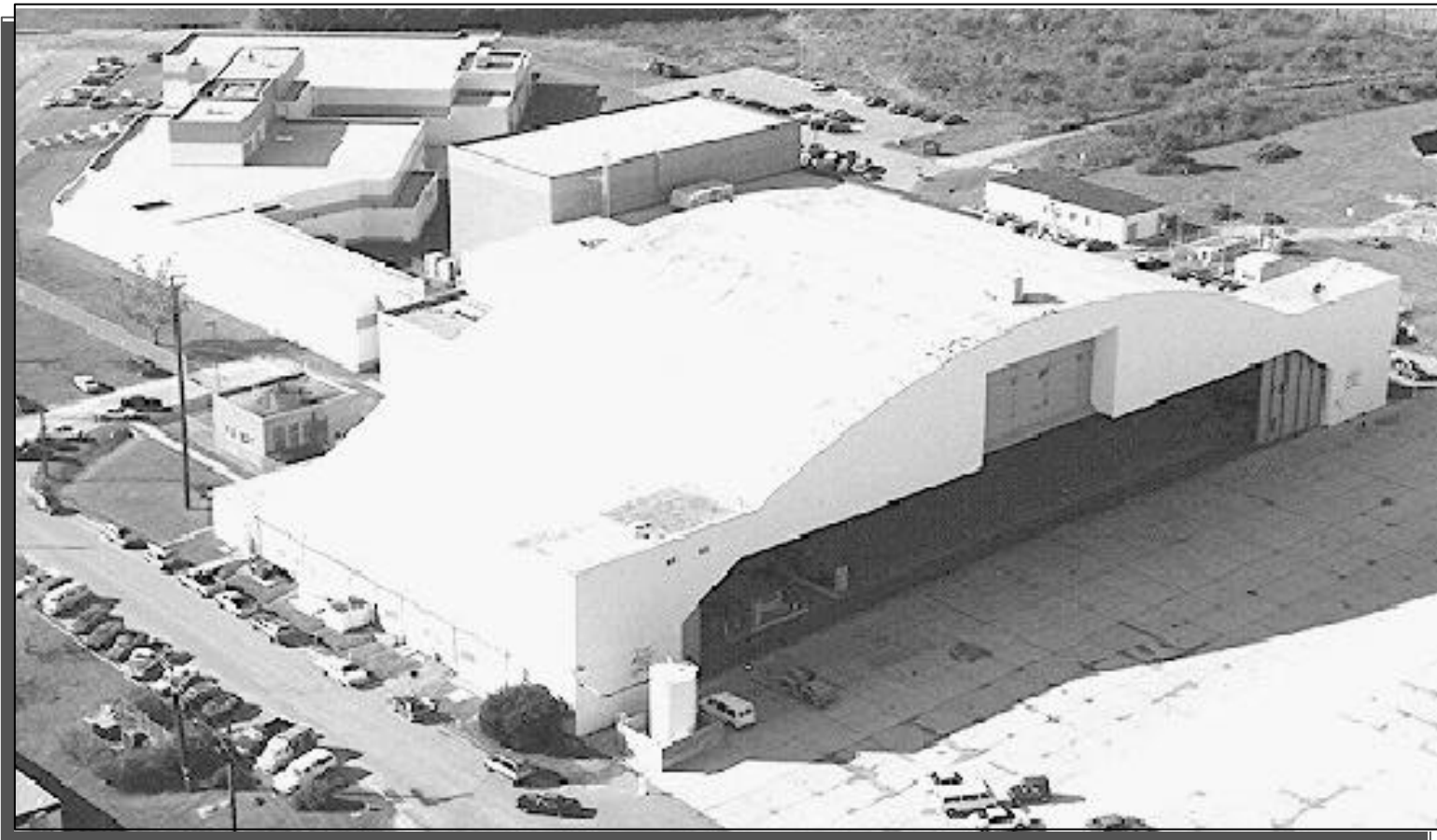
**SH-60 Gun
Integration**



Systems Integration



Air Combat Environment Test & Evaluation Facility (ACETEF)



Lightning



Electromagnetic Environmental Effects (E³)



Precipitation Static



Systems Integration Testing



Large Anechoic Chamber



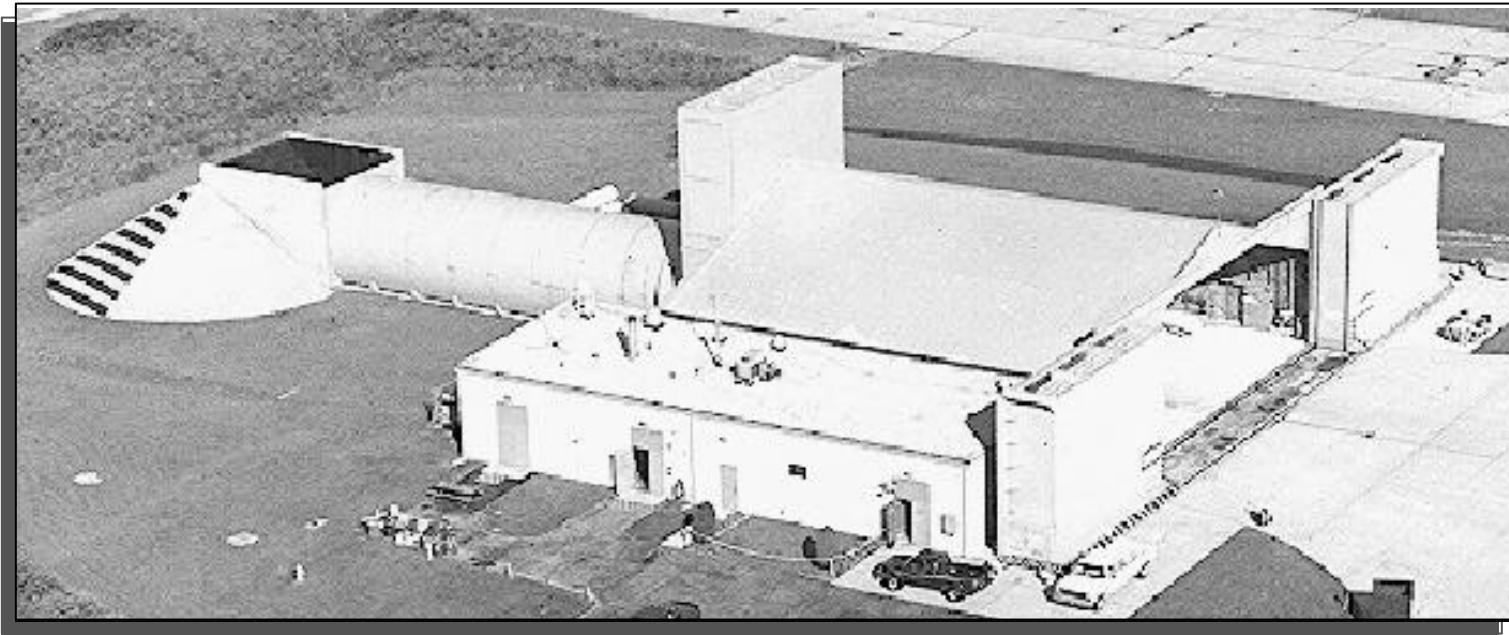
Electronic Warfare Testing



Dome Simulation



Air Vehicle Systems Integration



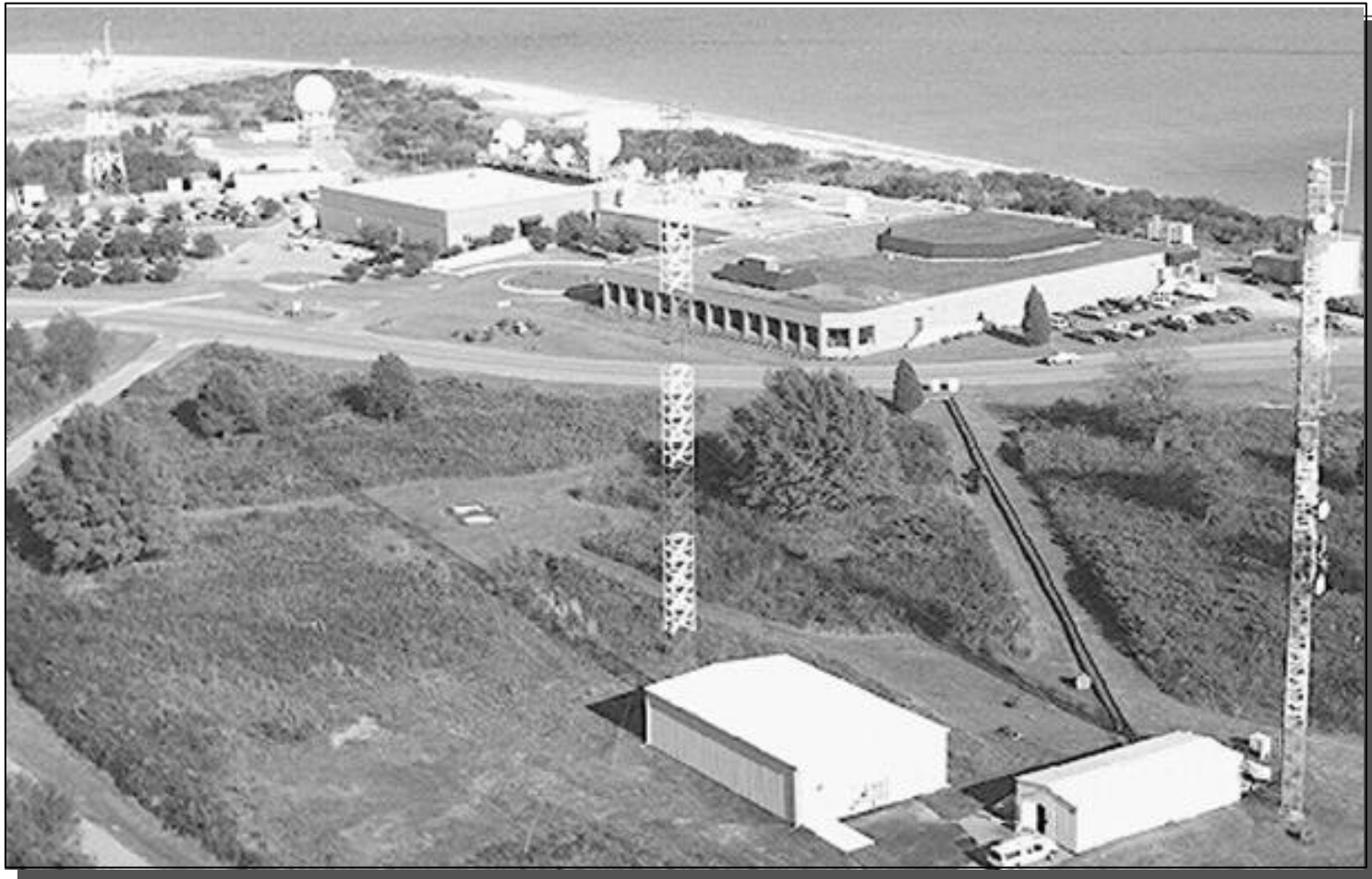
Hush House



Night Vision Device Testing



Atlantic Test Range



Real-Time Telemetry Processing System



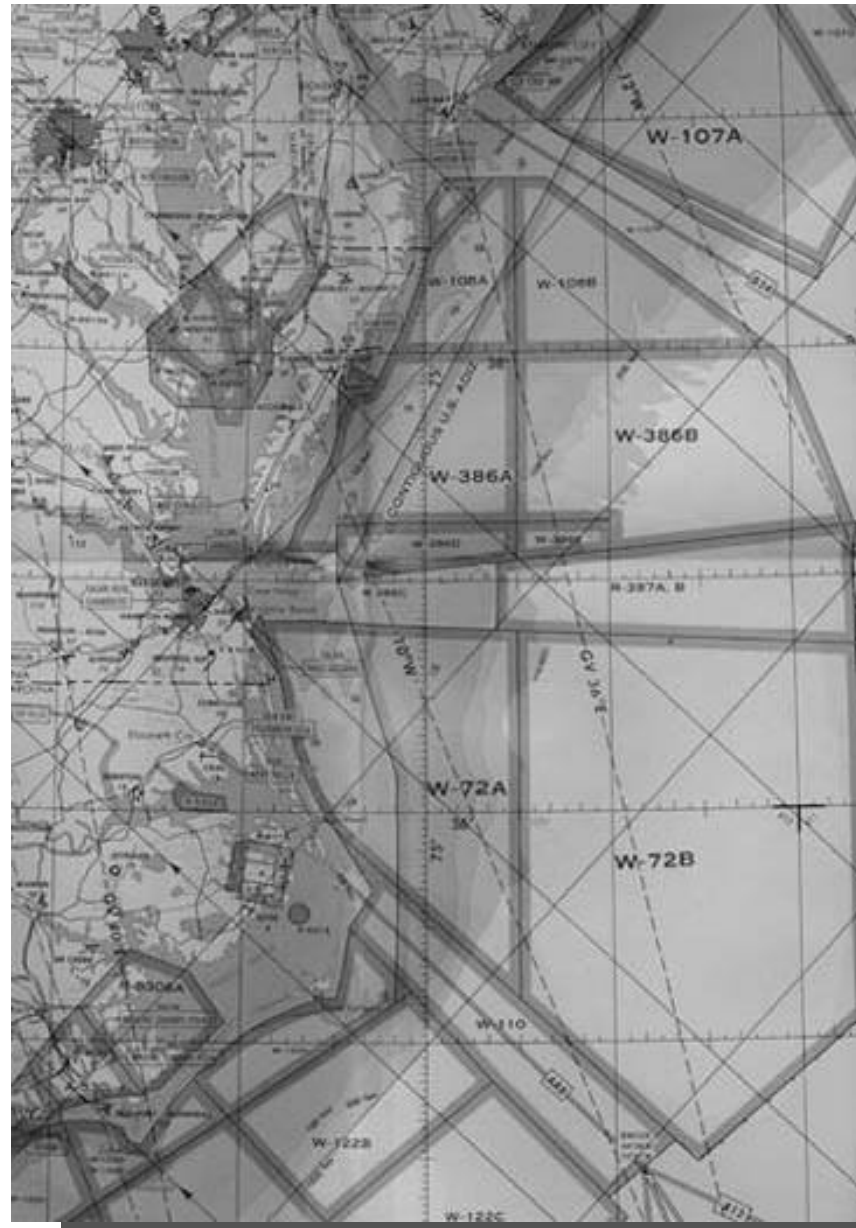
EW Emitters



Restricted Air Space



Regional Warning Area



Catapult



Arresting Gear

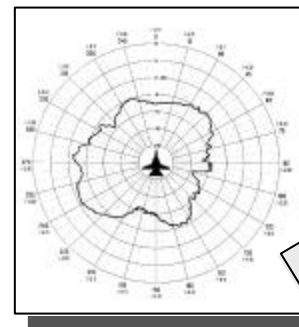
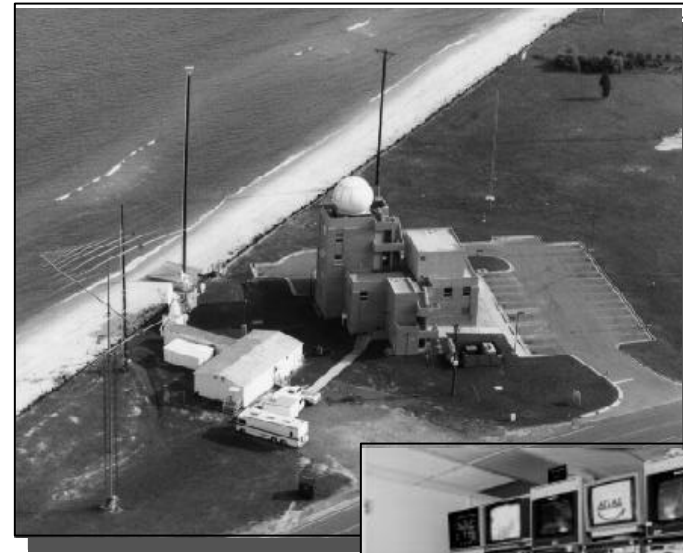


Antenna Testing Laboratory Automated System (ATLAS)

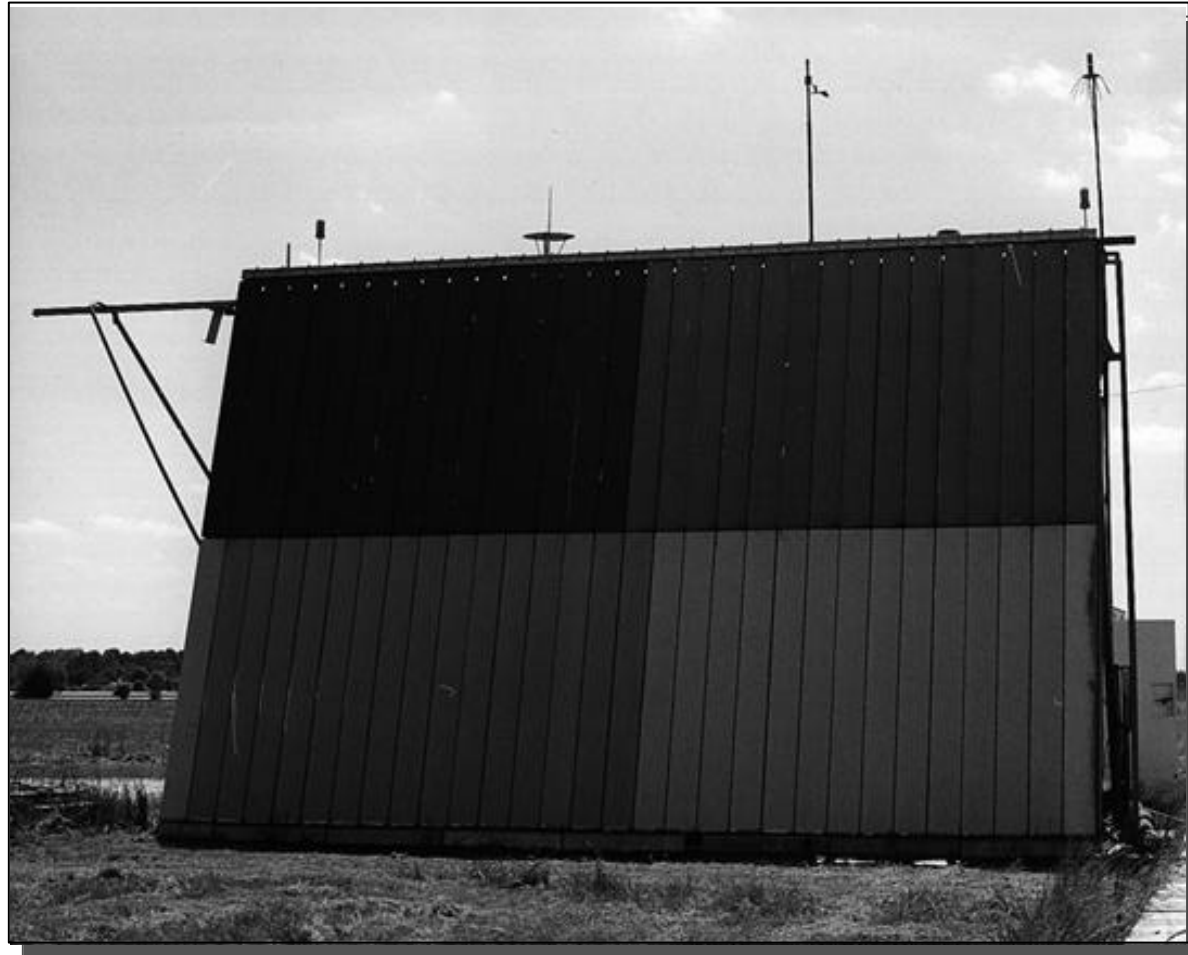


➤ In-Flight Antenna Measurements

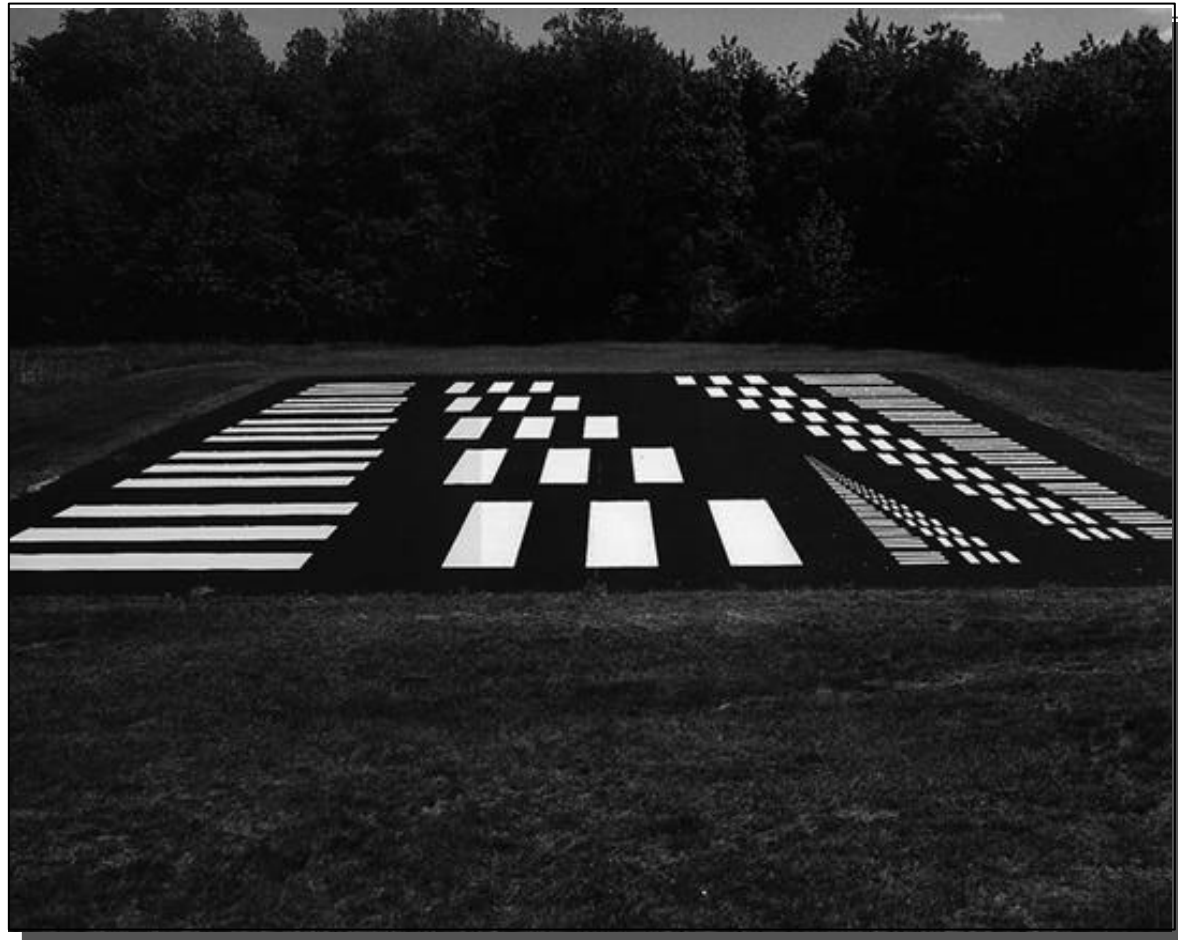
- 2 MHz to 18 GHz Free Space
- Pattern Measurements
- Referenced to Isotropic
- Automated
- Accurate
- Dedicated
- Unique Geographical Location
- Versatile

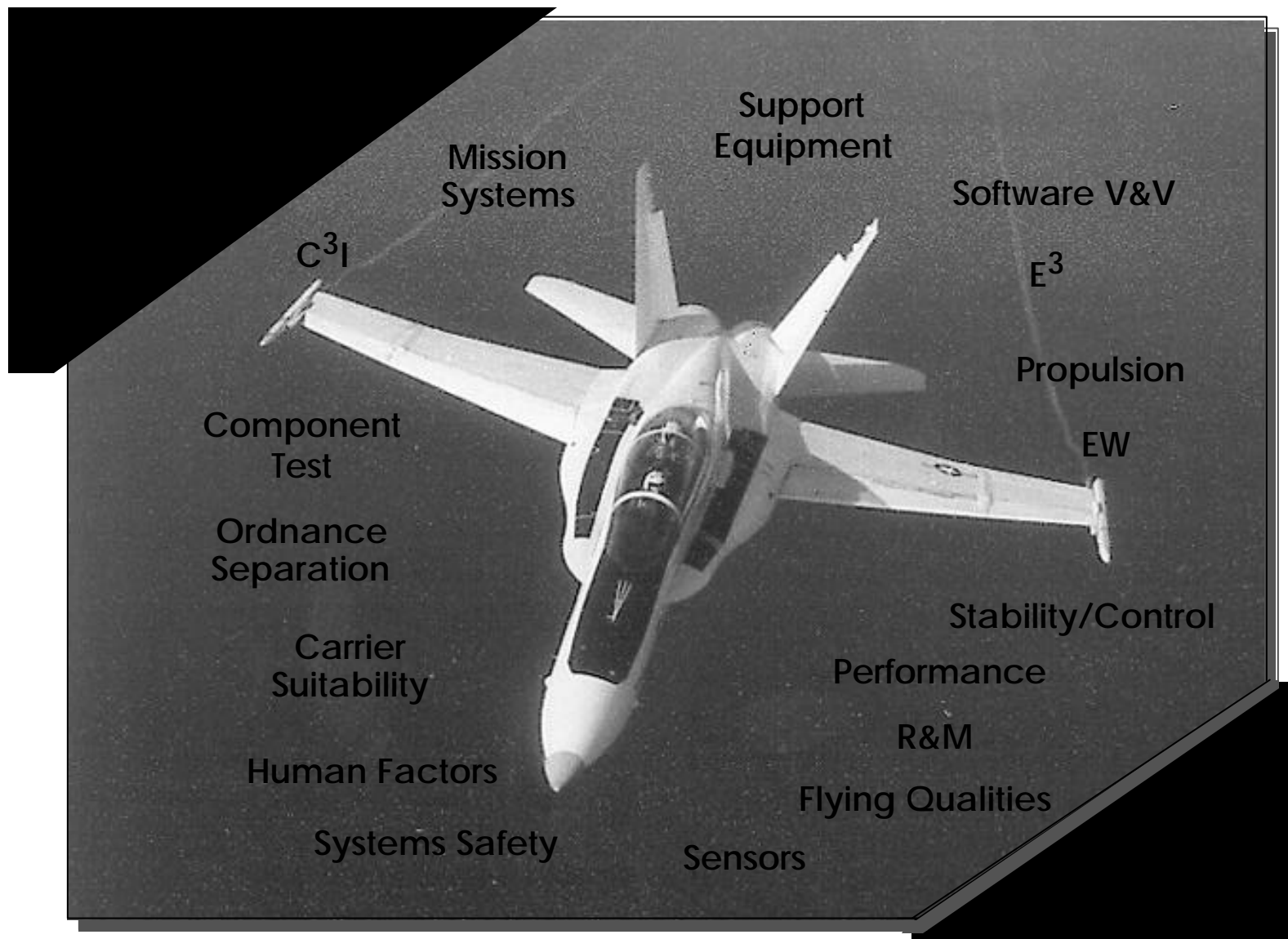


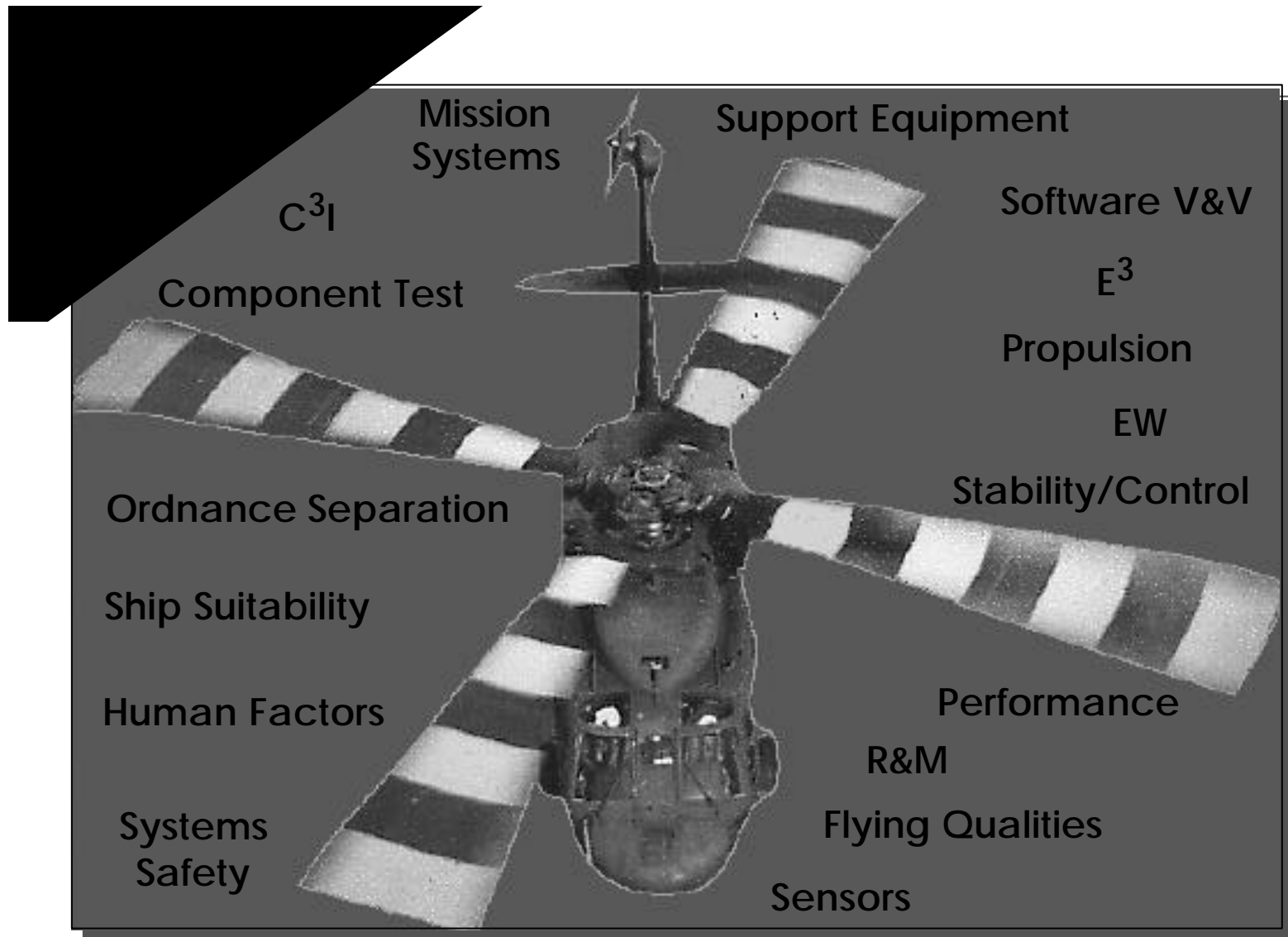
Electro Optics Target



Reconnaissance/Resolution Target









Project Highlights

Active Test Projects



➤ **Flight Systems**

- ↳ **Airframe**
- ↳ **Propulsion and Fuel**
- ↳ **Flight Control**
- ↳ **Environmental**

➤ **Mission Systems/Installed Weapons**

- ↳ **Avionics**
- ↳ **Processors and Software**
- ↳ **Remote Sensors**
- ↳ **Subsystems**

➤ **Component Improvements**

➤ **Related Support Systems**

Flying Qualities



Performance



Stability and Control



Sensor Evaluation



Countermeasures



Countermeasures



Weapon Separation



Missile Compatibility



Air Crew Systems

- **Chemical
Biological
Protective
Gear**



Shipboard Compatibility



External Load Validation



Unmanned Aerial Vehicle Testing



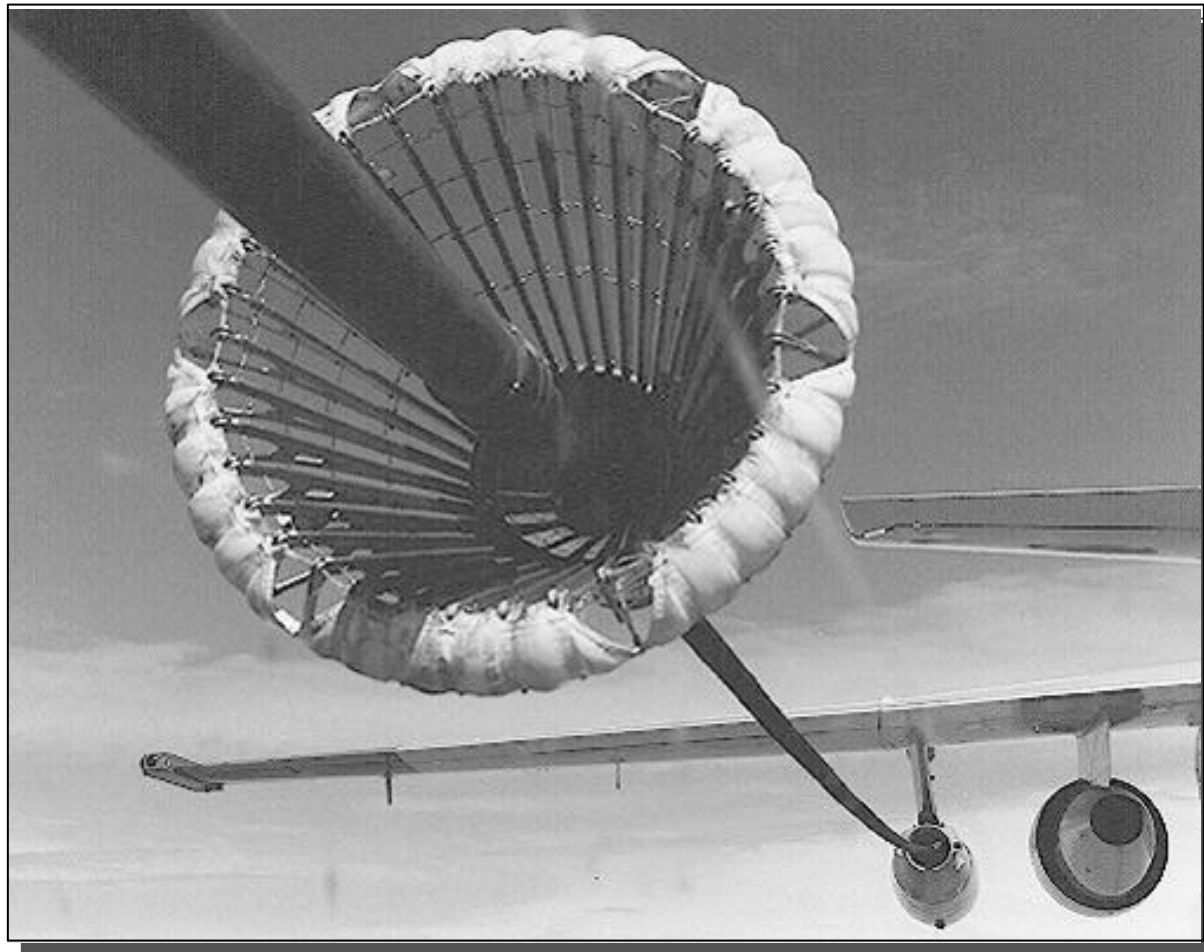
Unmanned Aerial Vehicle Testing



V-22



Aerial Refueling



Support Equipment



Targets



T-72 Tank





F/A-18



T-45



AV-8B



SH60-B

F/A-18E



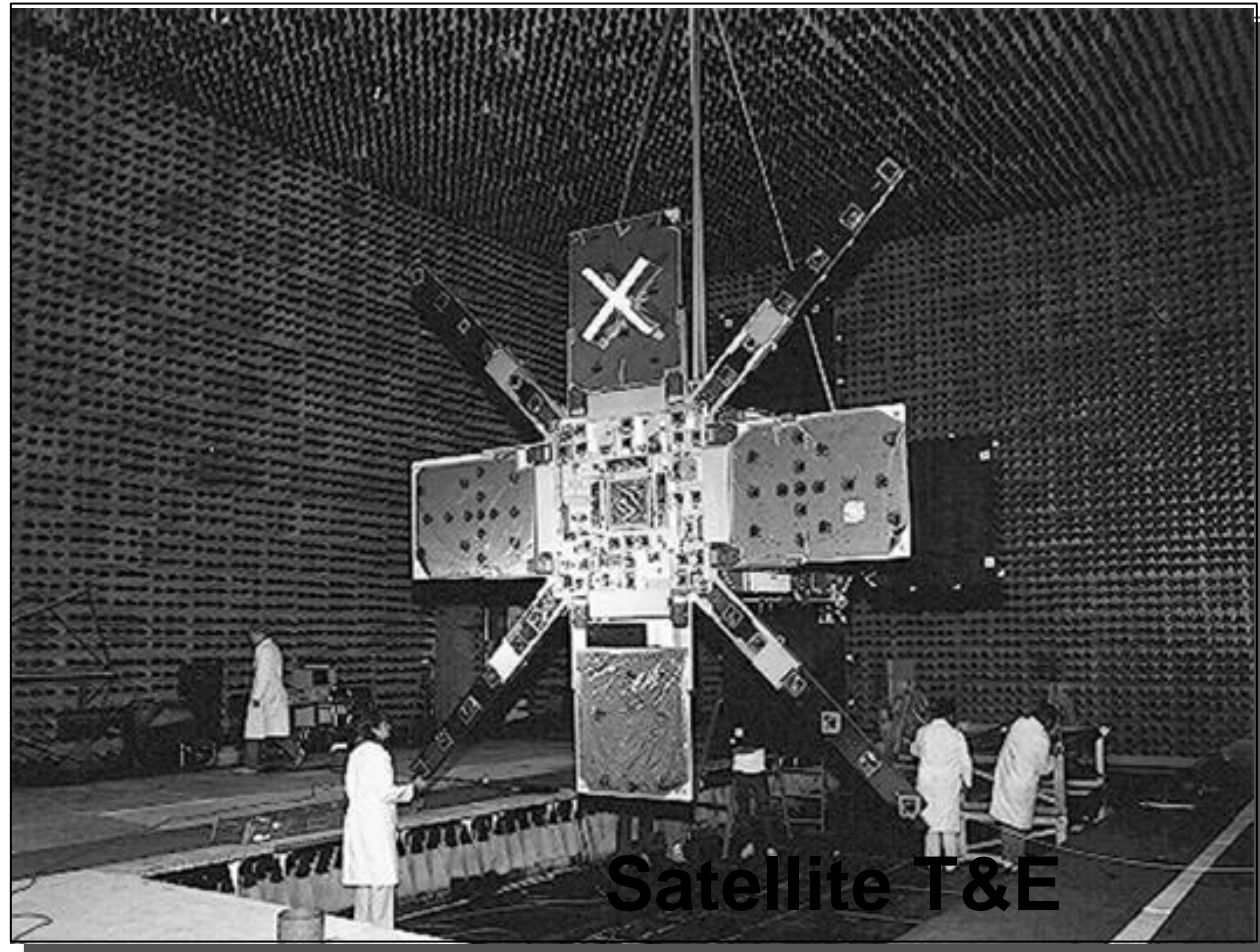
V-22





Non-TEAM Work

Anechoic Chamber





CH-47D



AH-64



MH-60K



MH-47E

Army



Patriot EMP Test



C-17



MC-130E



F-15



F-16

Air Force



RCS Testing



Coast Guard



NTSB



NASA



FAA

Vessel Traffic System



NASA



T-38 Engine Testing



Kuwait



Norway



France



Canada

E³ Testing



Eurofighter 2000



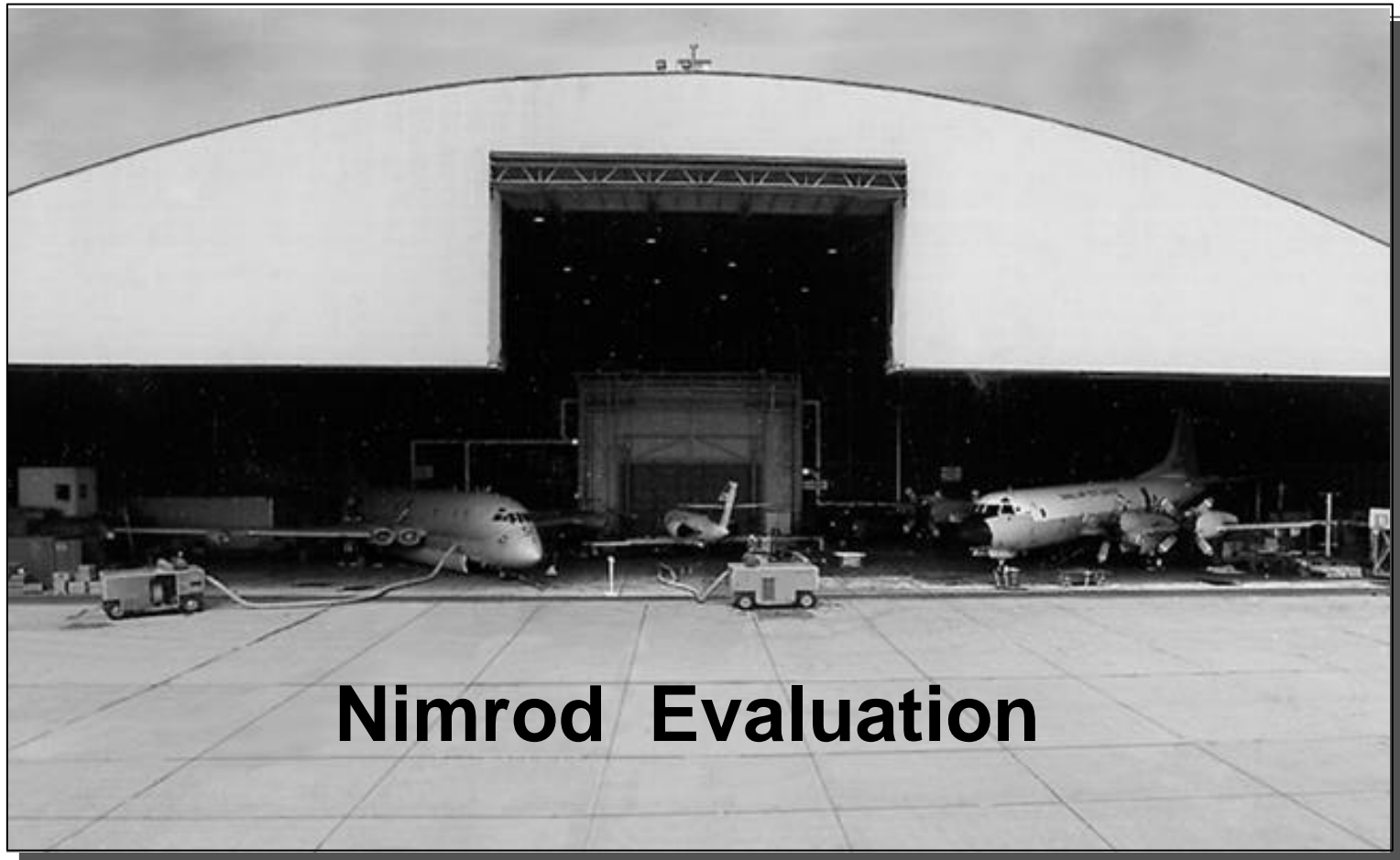
F-14



International



International



International



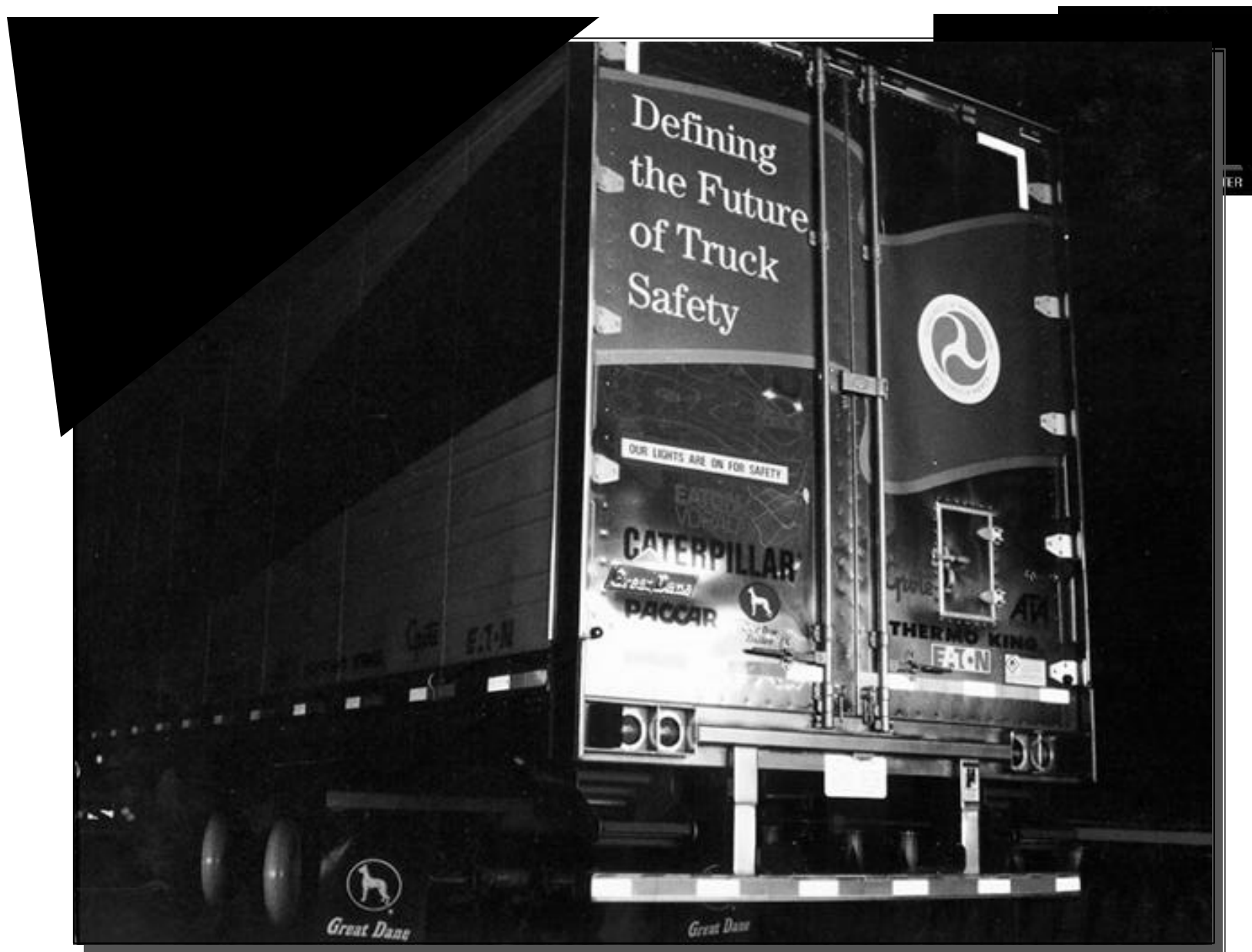
FY99 International Customers



- Argentina
- Australia
- Bahrain
- Canada
- Chile
- Denmark
- Egypt
- Finland
- France
- Germany
- Greece
- Hungary
- Israel
- Italy
- Japan
- Korea (Seoul)
- Kuwait
- Malaysia
- Netherlands
- New Zealand
- Norway
- Pakistan
- Portugal
- Saudi Arabi
- Senegal
- Singapore
- Spain
- Sweden
- Switzerland
- Taiwan
- Thailand
- Tunisia
- Turkey
- United Arab Emirates
- United Kingdom

Commercial





Commercial



FY99 Commercial Customers



- Advanced Lubricant Technology
- Advanced Technical Products Inc
- Allied Signal Eatontown
- Allied Signal Lexington Park
- Allied Signal Newark
- American Overseas Marine Corp
- Ameritech Fastener Mfg
- Architects Engineers Planners
- Atlantic Mutual Companies
- Bath Ion Works Corp
- Bell Atlantic Mobile Annapolis
- Bell Geospace Inc.
- BF Goodrich
- Board of Education Toms River
- Board of Education/VOCA/City Ocean
- Boeing Long Beach Division
- Castrol Industrial North America Inc
- Central District of Illinois
- CKC Laboratories
- Coleman Microwave Co Edinburg
- Cooper Industries Liberty
- County of Mercer Trenton
- CRC Industries Inc
- DACC-SCI Columbia
- Dayton-Granger Inc Ft Lauderdale
- Dera Electronics
- DHCS Central Finance
- Electronic Systems Inc Gaithersburg
- Empire Test Pilot School
- ESCO Eng Systems
- F H Technologies Inc.
- Fastener Innovation Technology
- Federal-Mogul Corp
- First National Bank
- Fullerton Operation
- General Kinetics Inc
- General Offshore Specialized
- Gentex Corp Western Operations
- Greer Stop Nut Inc Nashville
- GTE BBN Corp Cambridge
- Harris Corp Elec Sys Sector Melbourne
- Harris Corp Rochester
- Herley Industries Inc.
- Highland Federal Bank Burbank
- Huck International Inc
- Hughes Danbury Optical Systems Inc.
- Intermarine USA Savannah
- Johns Hopkins University APL
- Lear Siegler Services Inc.
- Leland Electyrosystems Inc. Vandalia
- Level 1 Fasteners Huntington
- Llamas Plastics Inc
- Lockheed Aircraft Pax River
- Lockheed Martin Integ Systems Inc Orlando
- Lockheed Martin Lakeland
- Lockheed Martin Systems Fallon
- M Technologies Inc.
- Maritime Dynamics Inc Pax
- Massachusetts Bay Insurance Co Richmond
- McDonald's Pax River
- McDonnell Aircraft & Missile Systems St. Louis
- McDonnell Douglas Aerospace
- McDonnell Douglas Corp St. Louis
- Moddady Corp Subway Pax
- Motorola

FY99 Commercial Customers (cont)



- National Finance Center OPAC
- National Geographic Society
- Navmar Applied Sciences Corp
Warminster
- Norman L Cyr Milton
- Northrup Grumann
- Northern District of Georgia
- Northrup Grumann Baltimore
- Northrup Grumann El Segundo
- Northrup Grumann Electronic
Sensors & Sys Div
- Northrup Grumman Corp ISA
Sector
- Ocean Research Education
Foundation Inc. Coral Gables
- Omega Air Inc
- Operational Research Consultants
Inc Chesapeake
- Penn State, University Park
- Phillips National Inc Lakehurst
- Photographic Imaging Services
PAX
- Planning Systems Inc McLean
- Polysi Technologies Inc
- Postmaster PAX
- PSI Bearings
- Public Works & Gov Services Canada
- Quantum Milpitas
- Random Hearts Productions Inc
- Raytheon Company
- REV-CAP Co Inc, Maple Shade
- Rheology Montreal Ltd Canada
- Rockwell Science Center
- Royal Bank of Canada
- Sarma Aerospace Equipment
- SBS Avionics Technologies
- Scandia Manufacturing Co Inc
- Sea Education Association Inc
- Shore Lines Mfg Group Inc
- Sippican Inc
- Skyhooks Technologies Inc
- Smith Aerospace Leland
Electrosystems Vandalia
- Smith Industries Aerospace
- State of New Jersey Police
- Sunstrand Aerospace Rockford
- TCOM, L P, Columbia
- Technologies Inc Horsham
- TECOM Industries
- Teledyne Brown Engineering
- Texaco Exploration &
Production Inc
- The Boeing Company
Seattle
- United Air Surveys
Lakehurst
- United States Marine Inc
New Orleans
- United Technologies
Research Center
- University of Maryland
College Park
- Veridian
- Virgin Lightships Inc
- Westinghouse Electric
Corp
- Williams International

BOEING JSF



USAF CTOL



USN CV



USMC STOVL



UK STOVL

LOCKHEED MARTIN JSF



USAF CTOL



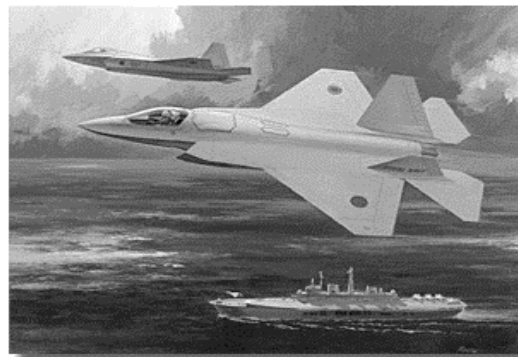
USN CV



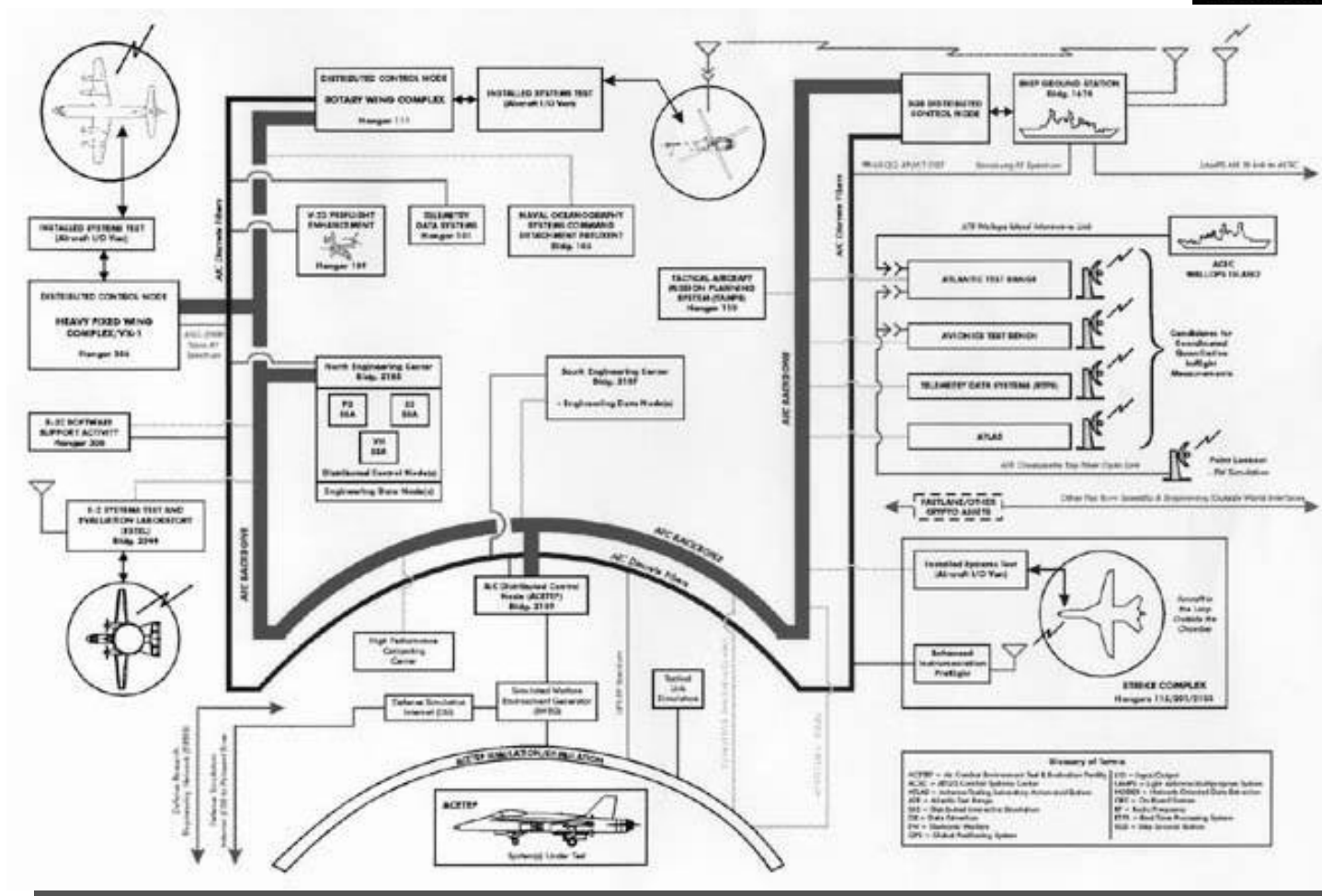
USMC STOVL



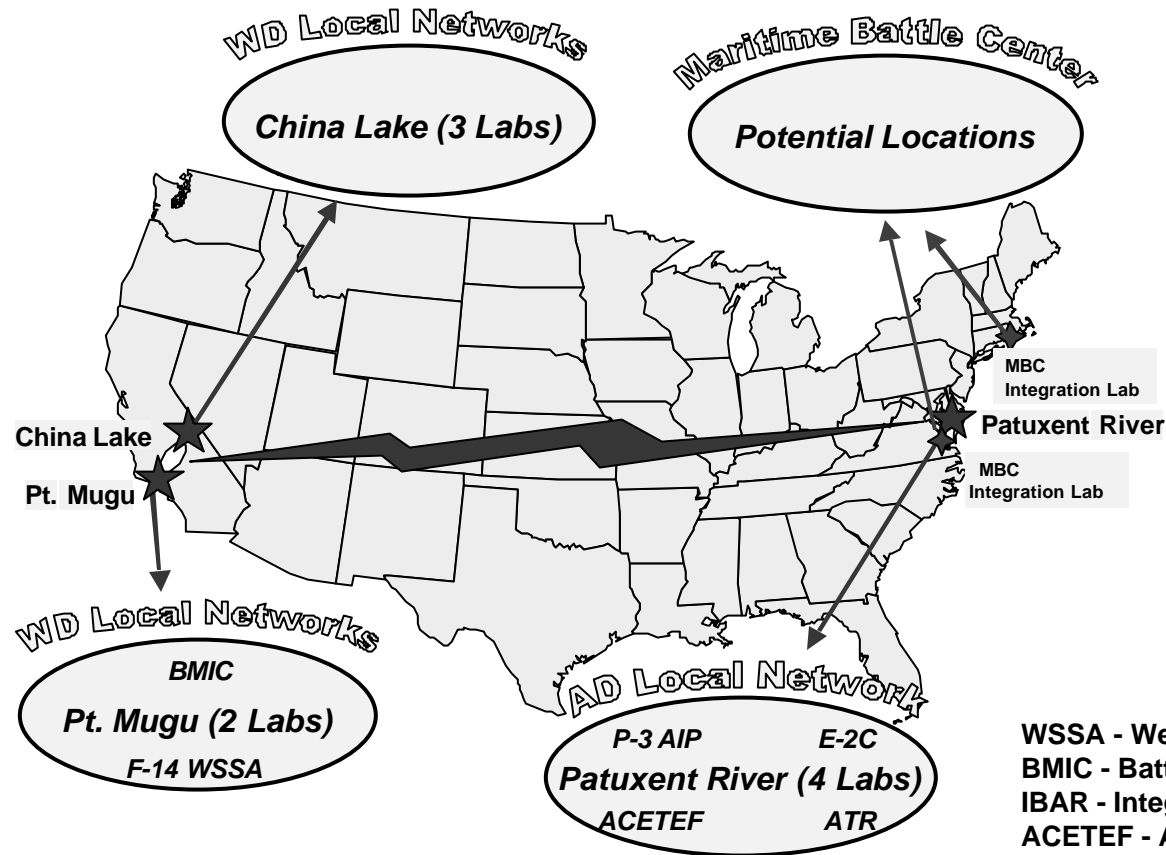
UK STOVL



NAVAL AIR WARFARE CENTER



NAVAIR Business Process Re-engineering Initiatives



OBJECTIVE

“Devise a T&E capability development strategy to optimize TEAM support for air combat systems integration into future joint warfare systems (sensor command and control, shooter) in a Network Centric Warfare (NCW) architecture”

WSSA - Weapons System Support Activity
BMIC - Battle Management Integration Center
IBAR - Integrated Battlespace Arena
ACETEF - Air Combat Environment Test & Evaluation Facility
ATR - Atlantic Test Range
AIP - Avionics Improvement Program

Integrated Capabilities to Support Program Requirements



WSSA/SSA



S&T Facility



Simulation Facility



Installed System
Test Facility

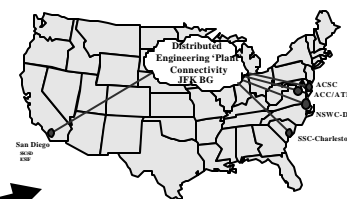
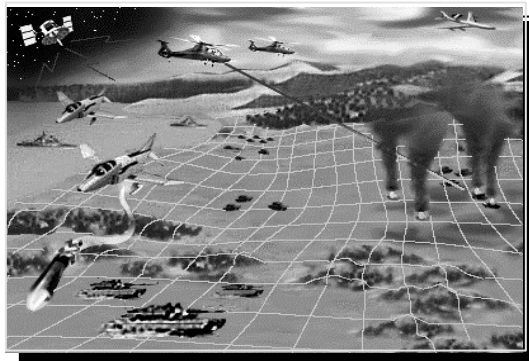


Open Air Range

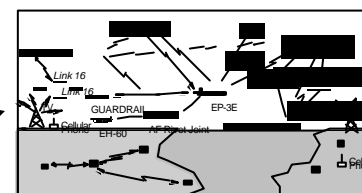


Hardware-in-the-loop

Common Simulation & Stimulation Environment



Participant in DEP



Joint Service and Fleet
Battle Experiments



Joint Advanced Distributed Simulation



High Performance Computing



Business Thrusts



- **Form Strategic Alliances with Joint / Allied Warfighters**
- **Deliver Innovative Products and Services**
- **Institute TEAM-wide Business Development Processes**
- **Pursue Business External to the TEAM**
- **Shape Resources (People / Facilities) to Remain Relevant to Joint Warfighter**

Gain the Edge



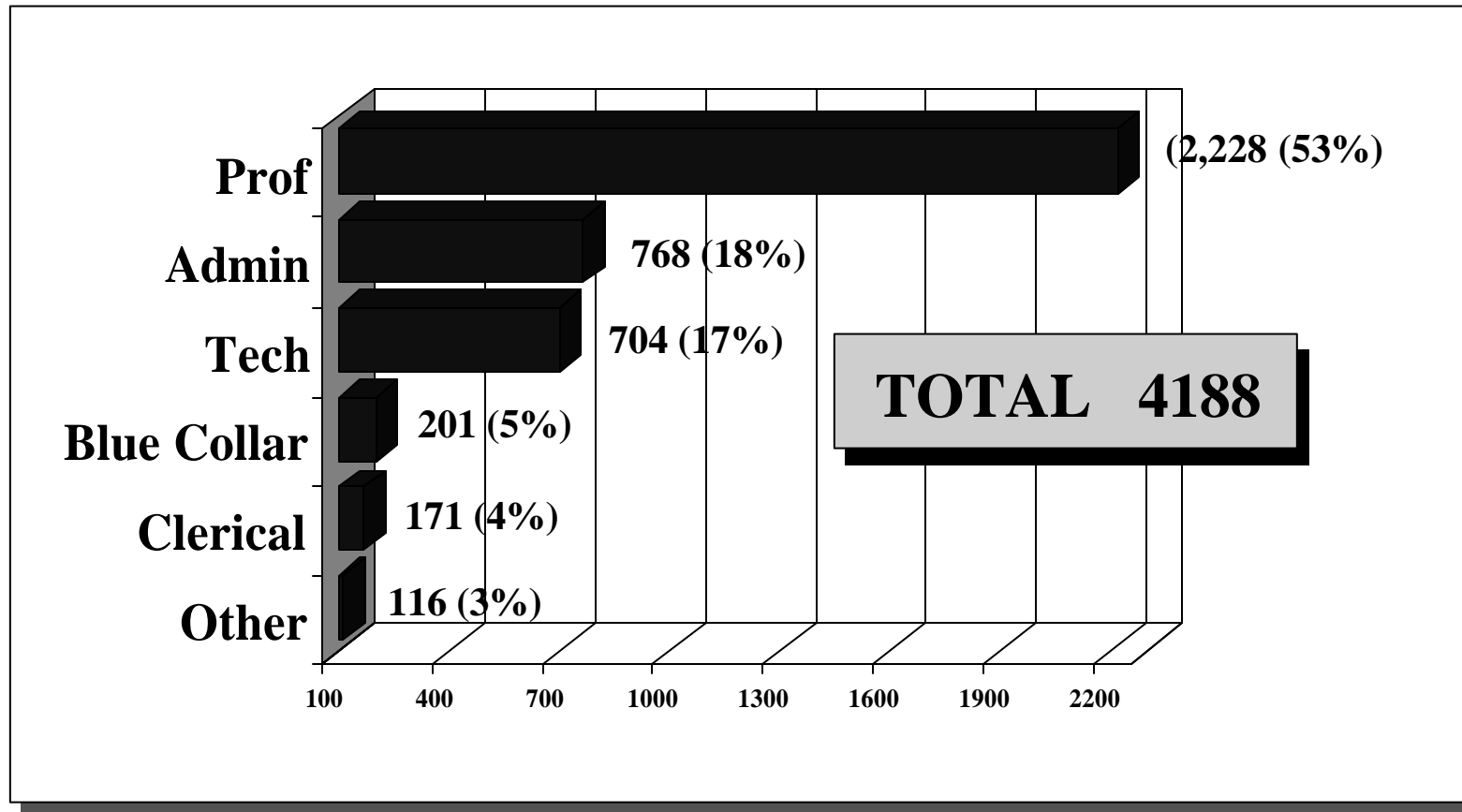
- **Unique Work Force**
- **World Class Facilities**
- **Aircraft**
- **Airspace**
- **Full-Service Support**
- **\$17.7 Billion Market**

**F-35
Integration**



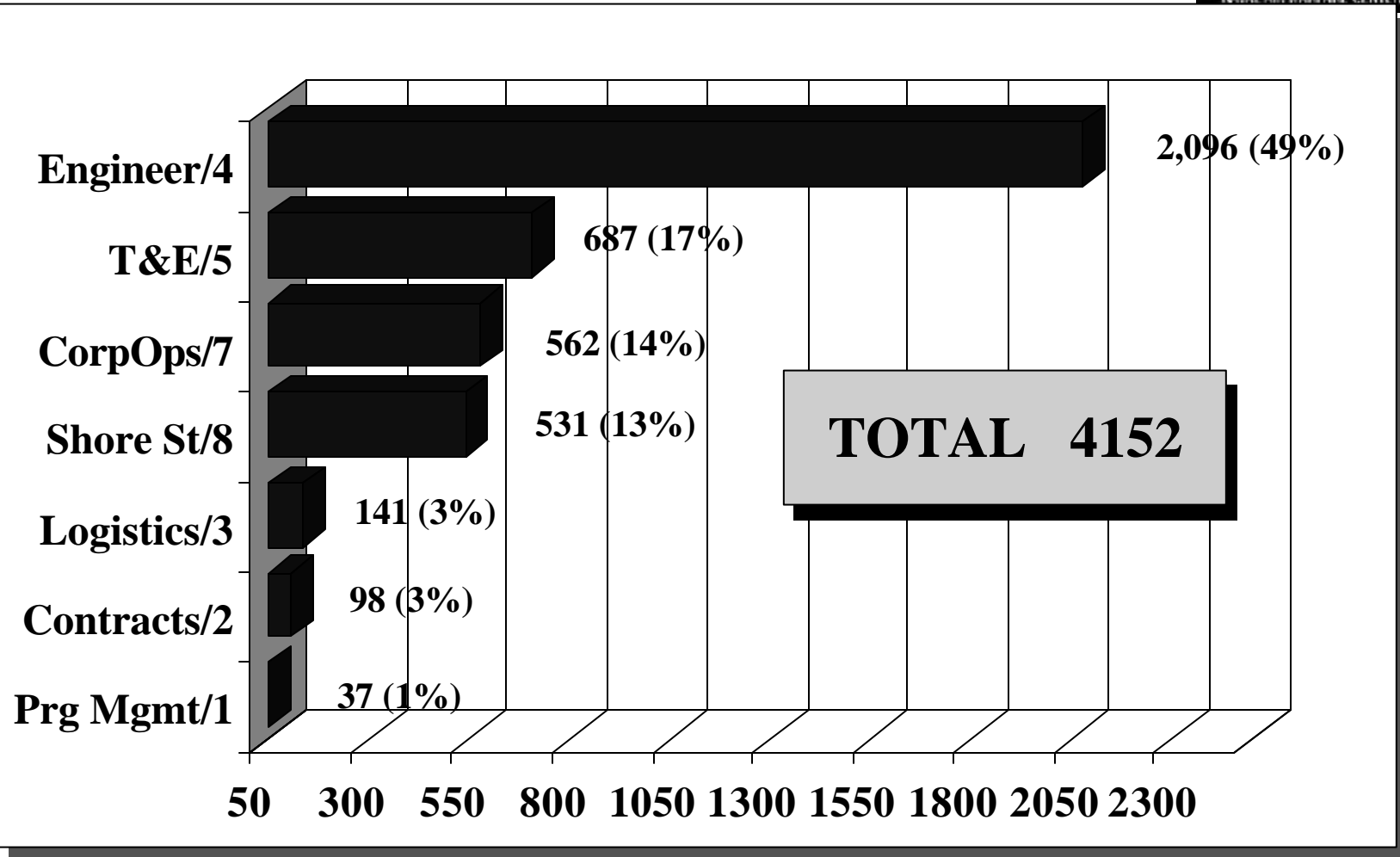
<http://www.nawcad.navy.mil>
e-mail busdevteam@navair.navy.mil
or phone 301-293-3333

NAWCAD (PAX) Civilians by Discipline



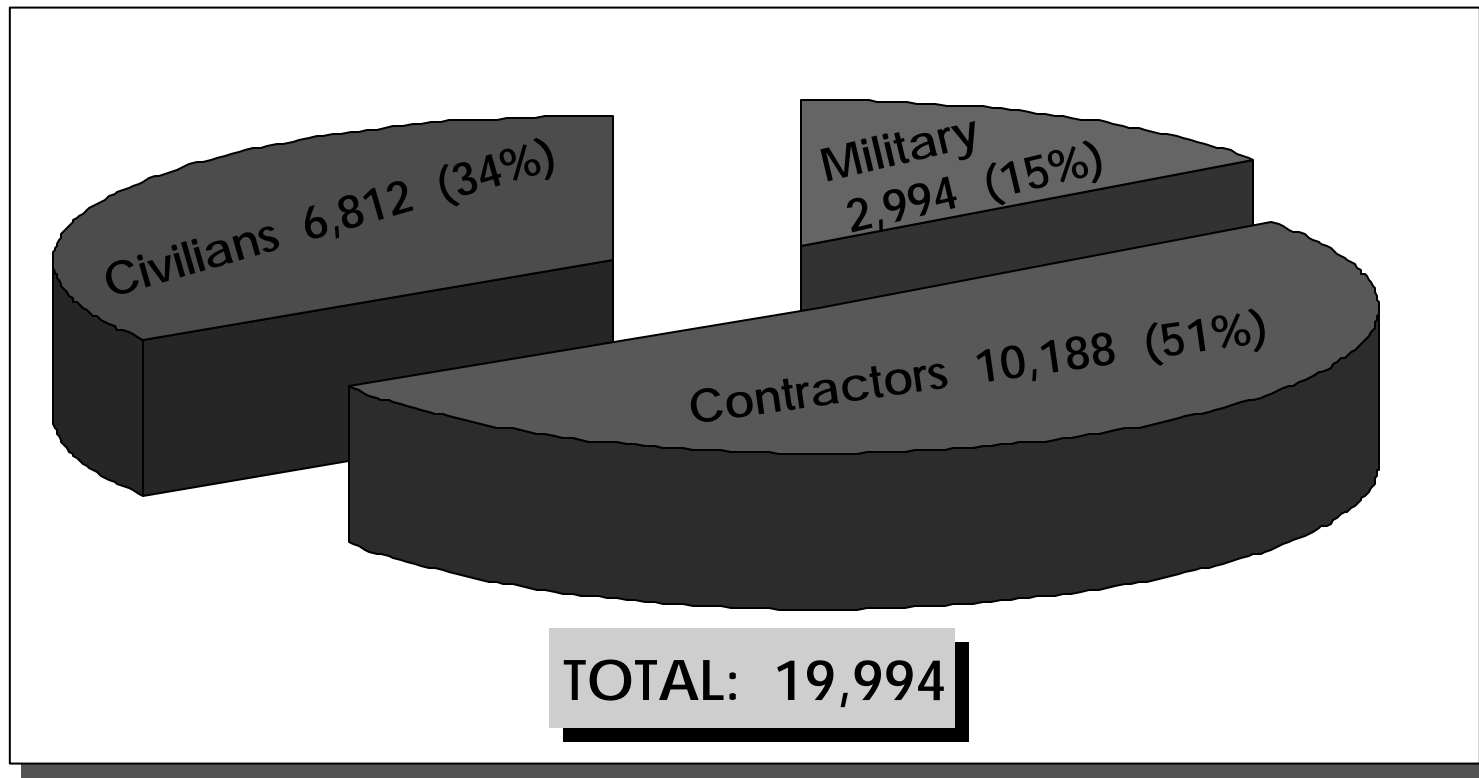
As of March 31, 1999

NAWCAD (PAX) Civilians by Competency



As of Sept 31, 1999

PAX Work Force



Vision



- **One TEAM Delivering 21st Century Aviation Solutions Enabling Dominance From The Sea ...**